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Recent Developments in Cancer Control*

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WITHIN the past third of a century, the United States has seen the development of extensive, well integrated programs to stimulate efforts and provide facilities for the control of cancer. This development has paralleled a growing recognition of the fact that present methods of combating the disease can be applied effectively as basic research advances. The primary objectives of cancer control—prevention, early discovery, and prompt and adequate treatment—can be attained, in substantial degree, through application of present knowledge and physical resources.

Undoubtedly, a strong incentive to the development of control measures has been the progressive increase in the cancer mortality rate, which represents an actual rise in cancer deaths as other diseases are controlled and man's life span lengthens. In 1900, when the average person could be expected to live about forty-nine years, tuberculosis was the first cause of death. Heart disease was third on the list, and cancer seventh. Today, when the average person can expect to live to the age of sixty-six, heart disease assumes first place and cancer second. As the population ages, and the problem becomes more serious, it is only natural that cancer control should receive greater attention.

Then too, the recent war has stimulated control activities by throwing light on the possibilities of intensive coöperative research adequately financed, to which layman and scientist alike turn for a solution to this enigma. But lest too much confidence be placed in the power of money to provide the answer, it has been pointed out that there is a sharp difference between the spectacular advances in applied nuclear physics toward the end of the war and those that must be made in cancer research before the ideal cure is found. Specifically, it has been shown that the atomic bomb resulted from the application of knowledge accumulated in many countries over many years, whereas in the attack on cancer, much basic work remains to be done. The problems are similar, however, in that funds can be

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used to great advantage for training and for the procurement of much needed space and equipment. And doubtless the basic research that led to the release of atomic energy could have been facilitated materially by adequate financial support.

In further explanation of the recent emphasis upon cancer control, it should be mentioned that our return from wartime conditions and economy has made possible the intensification of efforts on the part of large official and voluntary organizations. New impetus was given to cancer control in 1946, when Congress increased cancer research appropriations from $490,000 to $1,772,000, and when the American Cancer Socitey, previously concerned mainly with cancer education, entered the research field, allocating $2,500,000 for research grants and fellowships. Voluntary contributions to the Society totaled $12,150,000 in the April, 1947, drive. Many other large organizations, such as the Damon Runyon Cancer Fund, the American Contract Bridge League, and the National Cancer Foundation, Inc., have appreciably furthered the national control movement.

Another encouraging trend—certainly a result of the new activities and discoveries—is a general rise in the national morale with respect to the cancer picture. The pessimistic attitude of a decade ago, no less prevalent among professional workers than among the laity, has given way to a widespread appreciation of the possibilities for cure by adequate treatment if cancer is discovered early, and of the power of research to win an ultimate victory over this disease.

The National Cancer Institute, organized in 1937 within the National Institute of Health, the main research branch of the Public Health Service, was the federal government's response to repeated demands for guidance and active assistance in cancer control and research. The pertinent legislation, known as Title IV of the Public Health Service Act, outlines in broad but definite terms the research and control functions of the National Cancer Institute. It specifies that the Surgeon General, through the Institute and in coöperation with the National Advisory Cancer Council, shall:

a. Conduct, assist, and foster researches, investigations, experiments, and studies relating to the cause, prevention, and methods of diagnosis and treatment of cancer.

b. Promote the coördination of researches conducted by the Institute and similar researches conducted by other agencies, organizations, and individuals.

c. Provide training and instruction in technical matters relating to the diagnosis and treatment of cancer.

d. Provide fellowships in the Institute from funds appropriated or donated for such purpose.

e. Secure for the Institute consultation services and advice of cancer experts from the United States and abroad.

f. Coöperate with state health agencies in the prevention, control, and eradication of cancer.

g. Procure, use, and lend radium as provided in section 403.

It can be stated with certainty that the objectives of a cancer control program—prevention, early discovery, and adequate treatment—can be attained by means of five general techniques:

a. Intensive study of the problem and evaluation of program content

b. Provision of financial assistance to groups concerned with cancer control

c. Integration of control activities

d. Education of the public, physicians and allied workers

e. Application of control measures derived from research

The National Cancer Institute embraces these techniques in its cancer control program. As the Research Branch of the Institute approaches its long-range goal—to find the cause of cancer and improved methods of prevention and cure—the Control Branch will

continue, by means of these techniques, to reduce the number of cancer deaths.

With regard to the first technique, the Public Health Service conducted studies of the cancer problem for several years before the National Cancer Institute was established. Indeed, it was largely on the basis of these and other studies that the present organization of the Institute, and the pattern of its expenditures, were designed. Statistical and epidemiologic investigation will be continued, and the results when published will be available upon request.

In addition to the collection and analysis of morbidity and mortality data, statistical studies will be undertaken, in coöperation with interested agencies, in order to evaluate the newly developing cancer detection centers. It will be possible, through the operation of several mobile and fixed centers, to select more suitable diagnostic procedures and to determine necessary staffing requirements and the needs and cost of maintenance.

Another investigation will be designed to evaluate the cytologic test for cancer, which may be useful as a mass screening test supplementing the examination of the detection center and diagnostic clinic. Again through the medium of coöperative projects, it is planned to assess the cytologic test as a tool in the follow-up of treated cases.

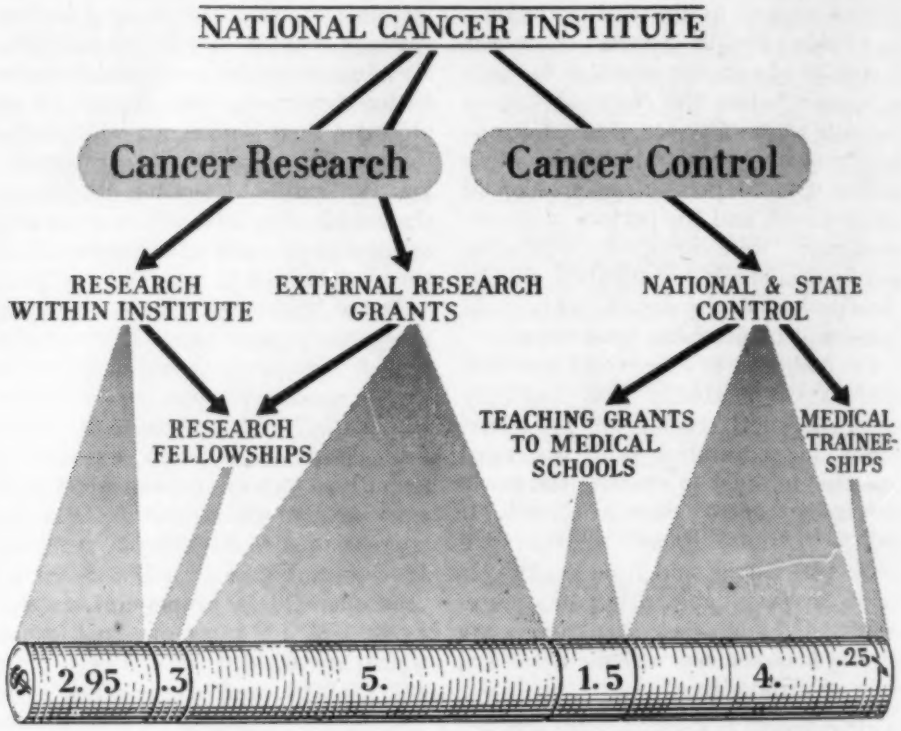
It is believed that other statistical studies would aid in the development of better follow-up procedures. Many hospitals and physicians lose contact with patients within a short time, indicating the need for revision and establishment of procedures to insure continuity of adequate management. The functions of the public health nurse and the medical social worker in the follow-up of cancer cases will be further explored, and the utilization of their services in relieving the socio-economic problems that arise from cancer may well be extended.

In addition, statistical studies will be undertaken to explain the delay between the onset of symptoms or signs and the patient's seeking of medical attention. The general practitioner's delay in referring suspected or proved cases for appropriate management may be studied further. There is need for psychometric investigation to determine the factors responsible for lack of more prompt application of remedial measures for the cancer patient.

At the beginning of the present fiscal year, the Surgeon General, in order to provide effective integration of the national cancer program, concentrated within the Institute three major activities—intramural research, financial assistance to cancer research outside the Institute, and cancer control. Of a total appropriation of $14,000,000 for 1947–1948 (see Figure 1), $2,885,000 has been allocated for intramural research; $4,803,000, for cancer research grants, which are divided into project grants ($2,500,000) and construction grants ($2,303,000); and $5,777,000, for cancer control purposes. The Cancer Control Branch, by means of this allotment, is enabled to apply the technique of providing financial assistance to outside control groups. Of the $5,777,000 allotted for control, $2,500,000 has been set aside for state health agencies, $1,000,000 for special control-project grants, $250,000 for clinical traineeships, $1,500,000 for grants to medical schools for the improvement of undergraduate cancer teaching, and $527,000 for demonstrations, consultation, and administration. Thus, approximately 40 per cent of the $14,000,000 will be expended for cancer control work, and most of the remainder will be used for research.

The program extending to states direct financial assistance in the conduct of cancer control activities was formerly administered by the States Relation Division of the Public Health

FIGURE 1



1948 total appropriation, $14,000,000.
Breakdown in millions of dollars as of Dec.'47

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Service. In July, 1947, however, a reorganization of the National Cancer Institute was effected, and the administration of grant funds for control became a responsibility of the Cancer Control Branch. The $2,500,000 allotment for state control work is made available to the states on the basis of a formula employing the following factors: population (30 per cent), financial need (30 per cent), cancer mortality (35 per cent), and population density (5 per cent). Table 1 shows the amounts available to each state and territory. Payments are made to the state agency upon favorable acceptance of a plan and supporting budget.

As of November 1, 1947, budgets for the utilization of federal grants for cancer control activities had been received from 46 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Of these funds, $1,500,000 were budgeted for specific cancer activities conducted by the administrative units of the state agencies or for specific local projects. An additional quarter of a million was reallotted to local health units that conduct control activities as part of their general

TABLE 1

Federal Allotments to States and Territories for Cancer Control Activities—Fiscal 1948

States	Allotments	States	Allotments	States	Allotments
Alabama	$ 60,529	Maryland	$ 32,552	Oregon	$ 24,178
Arizona	15,326	Massachusetts	75,286	Pennsylvania	159,339
Arkansas	43,318	Michigan	84,015	Rhode Island	12,461
California	124,033	Minnesota	51,080	South Carolina	42,069
Colorado	24,695	Mississippi	55,300	South Dakota	15,583
Connecticut	27,833	Missouri	68,875	Tennessee	58,492
Delaware	4,649	Montana	13,287	Texas	118,908
Dist. of Columbia	12,990	Nebraska	27,523	Utah	14,698
Florida	41,659	Nevada	7,382	Vermont	8,896
Georgia	64,790	New Hampshire	11,396	Virginia	52,393
Idaho	13,585	New Jersey	68,302	Washington	32,459
Illinois	129,197	New Mexico	15,205	West Virginia	34,240
Indiana	58,563	New York	209,602	Wisconsin	55,387
Iowa	45,314	North Carolina	71,176	Wyoming	9,200
Kansas	34,432	North Dakota	14,499	Alaska	8,595
Kentucky	58,752	Ohio	112,236	Hawaii	13,139
Louisiana	49,776	Oklahoma	42,214	Puerto Rico	30,776
Maine	18,707			Virgin Islands	1,109

Total..... $2,500,000

health programs, and $200,000 was budgeted for the training of personnel engaged in cancer control work. This includes courses in colleges having schools of public health, medical and nursing schools, as well as short seminars, institutes, and orientation courses for the general practitioner. The remaining funds were budgeted for control services in which other units of the health department participated, such as nursing services, tissue interpretation, statistical studies, and health education.

An analysis of the records submitted by the states indicated that 29 states, the District of Columbia, and Puerto Rico had appropriated as of November 1, and will expend in fiscal 1948, approximately $3,000,000 in addition to funds received from the federal government.

The Cancer Control Branch of the Institute employs the technique of providing educational advantages to the medical profession through:

1. Financial assistance to class A medical schools, to the extent of $25,000 each, for the purpose of improving their undergraduate cancer teaching
2. Sponsored traineeships to qualified young physicians, to provide graduate experience in the management of cancer
3. Production of informative materials

In November, 1946, the National Advisory Cancer Council invited medical school deans, professors, and other persons interested in medical education to a conference at the Institute. The purpose of this conference was to seek ways of improving undergraduate cancer education. As a result of the proceedings, which appeared in the August, 1946, issue of the Institute's *Journal*, the Council recommended:

1. That medical schools review their cancer teaching and consider the addition of concentrated courses, preferably in the senior year, in which the pathology, physiology, and biochemistry of cancer would be correlated with a weekly clinic devoted to cancer of various sites;
2. That medical schools undertake cancer research as a stimulus to cancer teaching and student interest.
3. That ways be found to assist this program financially.

Whereas the program to help medical schools improve cancer training is relatively new, the Institute for several years has provided traineeships to help physicians obtain additional graduate training in the clinical management of cancer. At present, 77 physicians are receiving benefits. Traineeships may provide up to 3 years of full-time postgraduate work in medical centers

equipped for well rounded cancer training, including surgery, radiology, and pathology.

It is required that the trainee select the hospital for his training and that he be accepted there. Further, the applicant must be under 40 years of age, a graduate of an approved medical school, and have completed a one year rotating or surgical internship in an approved hospital.

Coöperation with medical societies, schools, and hospitals in keeping physicians better informed on cancer is an essential function of a state control program. For even though the incidence of cancer is increasing, the physician with an average practice sees no more than four or five cases yearly. It is difficult for him to maintain familiarity with this disease, which requires such prompt recognition and treatment. Short-term refresher courses, in which physicians, surgeons, internists, radiologists, pathologists, and others can obtain training in recently developed methods of treatment and diagnosis, are proving effective as educational media. This type of instruction is important for dentists, who frequently have the opportunity to detect early cancer of the buccal cavity, and for public health nurses, who are responsible for a large part of the care of cancer patients.

The technique of applying control measures derived from research is best illustrated by the work of the cancer detection center, the diagnostic clinic, and the cancer clinic. It should be pointed out that the first of these control facilities—the detection center—is coming to be regarded as one of the most promising safeguards against fatal cancer. Essentially, the purpose of the center is to detect unsuspected cancer through periodic examination of apparently well persons at those ages at which the disease is most prevalent. Detection centers have found cancer in about 1 per cent of the apparently well persons examined, and precancerous lesions in 15 per cent. Approximately 30 per cent of these examined are found to have abnormalities in need of medical attention. When further examination or treatment is required, the examinee is referred to his own physician. Most centers are in metropolitan areas, where they are operated and financed by private organizations, such as local chapters of the American Cancer Society, hospitals, medical schools, foundations, physicians, and public health agencies.

Whereas the detection center is designed to serve only asymptomatic persons, the cancer diagnostic clinic is equipped for examination of persons suspected of having cancer.

The cancer clinic, in addition to giving diagnostic service, offers treatment to cancer patients. In most instances, cancer clinics are located in general hospitals, where specialists and laboratory facilities can be combined for greater efficiency. Over four hundred of these clinics have been approved by the American College of Surgeons, and others are extending valuable, if not complete, service. A great many more are needed, however, before the goal of one clinic per 50,000 population can be reached.

Reports on a recent survey and analysis by the U. S. Public Health Service present a comprehensive picture of the extent to which control measures are being applied in 52 states and territories.* These specific activities of the states may be divided into quartiles, according to the number of states performing or planning activities (see Table 2).

The control measures that fall within the first quartile—that is, those activities that received the greatest stress in fiscal 1947, and which will be expanded most in 1948—are as follows, in descending order of emphasis:

1. Coöperation with other state or voluntary agencies

* Exclusive of New Hampshire

TABLE 2

State Cancer Control Activities Arranged in Order of Frequency of Performance Fiscal Years 1947 and 1948—52 States and Territories Reporting *

Activity	*Number of States Performing in 1947*	*Additional States Planning for 1948*	*Old States Planning to Expand Performance*	*No Activity Planned for 1948*
First Quartile				
Coöperation with other state of voluntary agencies	44	7	31	1
Educational programs for adults	43	5	32	4
Educational programs for physicians and members of allied professions	38	11	30	3
Second Quartile				
Cancer statistical research	32	9	24	11
Educational programs for school children	28	10	22	14
Maintenance of a central cancer register	29	18	23	6
Third Quartile				
Provision of free histopathologic tissue examination	27	6	14	19
Provision of cancer consultation service	22	12	17	18
Operation or financial support of cancer diagnostic clinics and cancer clinics	21	11	17	20
Fourth Quartile				
Operation or financial support of cancer detection centers	16	19	15	17
Provision of beds in general hospitals for cancer	12	5	7	35
Participation in cancer laboratory research	6	9	3	37
Operation or financial support of cancer hospitals	3	2	1	47

* Data were not available for New Hampshire.

2. Educational programs for adults
3. Educational programs for physicians and members of allied professions

With regard to the first of these activities, 44 states reported performance in fiscal 1947, 31 of these planned to expand their performance in 1948, and 7 additional states planned activity for the latter year. Only one of the 52 reporting states and territories planned no activity for fiscal 1948. During fiscal 1947, 43 states conducted adult educational programs for the public, and 37 states plan new or increased activity for the present year. In 1947, 38 states and territories conducted activities in the education of professionals, and in 1948, 41 can be expected to perform new or increased activities of this type.

In the second quartile are the following items, in descending order of emphasis:

1. Cancer statistical research
2. Educational programs for school children
3. Maintenance of a central cancer register

In fiscal 1947, 32 states performed the first activity, 28 the second, and 28 the third. For 1948, 33 plan new or increased activity in cancer statistical research; 32, in educational programs for school children; and 41, in the maintenance of a central cancer register.

The following items fall within the third quartile:

1. Provision of free histopathologic tissue examination
2. Provision of cancer consultation service
3. Operation or financial support of cancer diagnostic clinics and cancer clinics

The items for which the least amount

of activity was performed or planned, resulting in their position in the fourth quartile, were as follows:

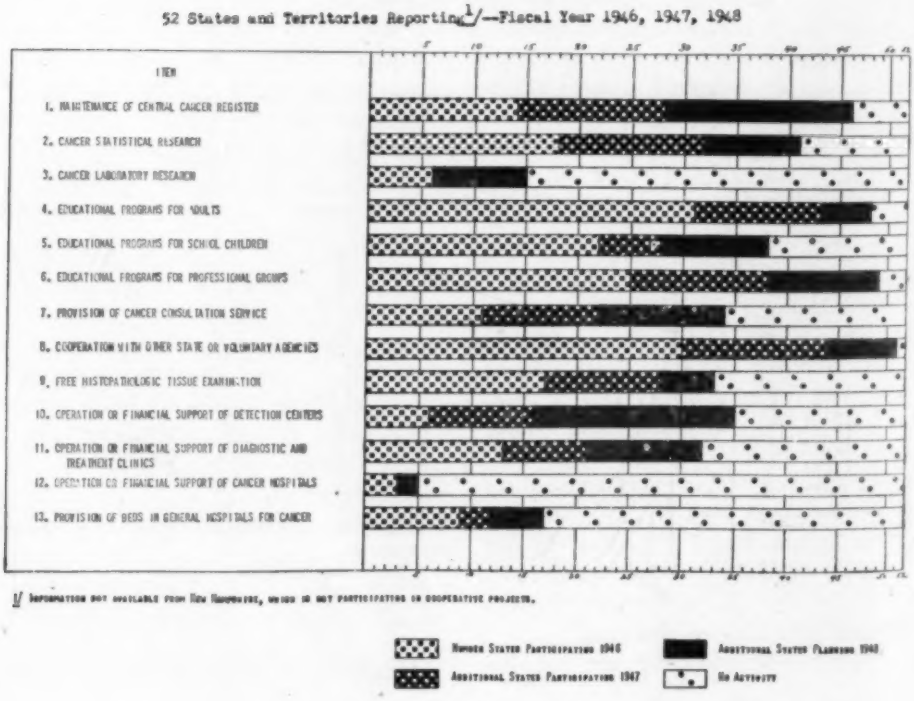
1. Operation or financial support of cancer detection centers
2. Provision of beds in general hospitals for cancer
3. Participation in cancer laboratory research
4. Operation or financial support of cancer hospitals

The number of states and territories that planned no activity for items in the fourth quartile was naturally higher than that for items in the other quartiles. For the first item in the fourth quartile, 17 states planned no activity; for the second item, 35 states; for the third, 37; and for the fourth, 47.

Corollaries of the data representing the present and proposed activities of the state health agencies (Table 2) reveal that of 52 states and territories, 49 will conduct cancer education programs for the medical and allied professions, and 48 for the adult public. Forty-six state agencies plan to maintain central cancer registers; 41 will conduct statistical research; and 34 will provide cancer consultation service. Over half of the states are operating or lending financial assistance to cancer clinics, diagnostic clinics, and detection centers. Proportionate emphasis upon the thirteen items, as indicated by the number of states participating in 1946, 1947, and planning for 1948, is revealed in Figure 2.

An interesting supplement to these data is a classification of the thirteen items according to the number of states and territories that reported placing major emphasis upon them in fiscal 1947. More states—21 of the 52—placed major emphasis on coöperation

FIGURE 2


CANCER SERVICES
STATE PARTICIPATION IN CANCER CONTROL ACTIVITIES
52 States and Territories Reporting 1/—Fiscal Year 1946, 1947, 1948
ITEM
1. MAINTENANCE OF CENTRAL CANCER REGISTER
2. CANCER STATISTICAL RESEARCH
3. CANCER LABORATORY RESEARCH
4. EDUCATIONAL PROGRAMS FOR ADULTS
5. EDUCATIONAL PROGRAMS FOR SCHOOL CHILDREN
6. EDUCATIONAL PROGRAMS FOR PROFESSIONAL GROUPS
7. PROVISION OF CANCER CONSULTATION SERVICE
8. COOPERATION WITH OTHER STATE OR VOLUNTARY AGENCIES
9. FREE HISTOPATHOLOGIC TISSUE EXAMINATION
10. OPERATION OR FINANCIAL SUPPORT OF DETECTION CENTERS
11. OPERATION OR FINANCIAL SUPPORT OF DIAGNOSTIC AND TREATMENT CLINICS
12. OPERATION OR FINANCIAL SUPPORT OF CANCER HOSPITALS
13. PROVISION OF BEDS IN GENERAL HOSPITALS FOR CANCER
1/ Information not available from New Hampshire, which is not participating in cooperative projects.
Number States Participating 1946
Additional States Participating 1947
Additional States Planning 1948
No Activity

with other state or voluntary agencies than on any other activity. Second in the order of emphasis, with 18 of the 52 states reporting, was the maintenance of a central cancer register. Next, 13 states placed major emphasis on the operation or financial support of diagnostic and cancer clinics; 11 on cancer statistical research; and 11 on educational programs for the adult public.

The activity that was increased over 1946 by the greatest number of states —20 of the 52—was coöperation with other state or voluntary agencies. Seventeen states reported an increase over 1946 in educational programs for adults among the general public. The items next in the order of increased emphasis were educational programs for school children (13 states) and for physicians and members of allied professions (12 states). For any item, not more than one state reported a decrease in emphasis over 1946.

A great majority of the states and territories planned to increase the personnel assigned to cancer activities in fiscal 1948. As of January 1, 1947, the states * employed 93 full-time workers, including 13 physicians, in cancer control activities. In 1948 the states plan to increase this number to 206. Even more pronounced is the planned increase in full-time physicians alone, from 13 to 40.

These figures, all in all, indicate a tendency toward better balance of cancer control activities throughout the nation, and represent a highly encouraging development in the entire control program.

Prior to 1946 a number of states had passed cancer laws and had exercised fairly comprehensive control measures. Among these states were New York, where a research program was started under an act passed in 1898; Massachusetts, with an act providing for statistical research in 1900; and Connecticut, where a law enacted in 1935 authorized the State Department of Health to investigate the prevention, treatment, and mortality from cancer, and to take action necessary to reduce cancer deaths. Other states with progressive control measures before 1946 were Missouri, New Hampshire, Vermont, Georgia, Illinois, Maine, South Carolina, and West Virginia. Still others had enacted legislation, but had not yet begun to implement it; and some had appropriated funds for use by the state health departments for cancer control purposes. In other words, a few states had done much toward cancer control, but many had only a paper program or conducted very limited activities.

To illustrate the extent to which cancer control measures are applied today in states that are developing well rounded programs, the services provided in New York, Massachusetts, and Connecticut will be discussed. In New York State, the cancer control program is administered by 8 full-time workers. The reporting of cancer cases to state health officers is required by law. There are 22 detection centers, 64 cancer clinics, 1 clinic limited to diagnosis, and 4 special cancer hospitals, which provide routine follow-up services and care of advanced cases. Services are offered to all residents of New York. A statistical department, with available information on morbidity, mortality, etc., is maintained; and tissue diagnostic service and pathology consultation are free to all physicians in the state. Professional education, consisting of refresher courses, postgraduate and undergraduate training, and the preparation of educational materials, is provided jointly by the American Cancer Society, the New York State Health Agency, and the State Medical Society.

In Massachusetts the cancer control program is conducted by a full-time medical officer and 22 full-time employ-

* Exclusive of Indiana, Maryland, New Hampshire, Tennessee, and Vermont, for which figures were not available.

ees. A central laboratory, supported by the state, provides service in tissue diagnosis, free to any physician or hospital in Massachusetts. There are 30 cancer clinics, and 2 state cancer hospitals that offer routine follow-up and care of advanced cases. A statistical program has been developed, and provides much valuable information on morbidity, mortality, percentage of cures, etc. A special elective course on cancer is offered at Harvard Medical College, and many educational materials are available for physicians and other professionals, as well as for the general public.

In Connecticut, 8 full-time workers are assigned to cancer control activities in the state agency. The state has 2 detection centers and 23 cancer clinics. Cancer pathology services include tissue diagnosis and pathology consultation. Refresher courses, postgraduate and undergraduate training, and educational materials are offered to the medical profession; and morbidity, mortality, and special statistical services are provided.

Although these and other states report recent progress in the establishment of cancer control facilities, it must be emphasized that the number of cancer clinics and detection centers is far short of the need. To date, we have knowledge of over 150 detection centers throughout the country and of 530 cancer clinics. It is hoped that the states will continue to expand these services.

Special control-project grants, for which the Cancer Control Branch of the Institute may allot up to $1,000,000, are made available to the states on a special project basis, to encourage the establishment or improvement of needed services in the overall control program. Applicants for such financial assistance may be the state health agency, medical centers, universities, cancer clinics, professional societies, and other organizations concerned with cancer control work. Applications for special project grants are reviewed by the National Advisory Cancer Council, which then makes recommendations to the Surgeon General.

As of October, 1947, twelve special project grants had been made. The projects include the study and teaching of the cytologic method of cancer detection, the operation of a mobile cancer clinic, statistical and epidemiologic studies, and work to improve and increase the number of cancer clinics in the United States.

One of these grants, which has been of particular interest nationally, was made to the American College of Surgeons, the agency which originally undertook the task of organizing and approving cancer clinics. Little has been done in this program since early in the war years. This is unfortunate, for there are many hospitals that with the necessary stimulation and guidance could now establish clinics conforming to the standards of the College. Furthermore, a number of existing cancer clinics are now eligible for approval, and others on the approval list may need advice or stimulation in order to attain the established standards. The grant to the American College of Surgeons will assist in the reactivation and expansion of such programs.

An attempt has been made in these pages to describe in broad terms the federal organization for cancer control and the present status of the national control movement. The programs of some of the larger voluntary organizations, such as the American Cancer Society, have been mentioned. It should be added that the activities to be carried out with the funds collected by these voluntary groups will supplement those to be undertaken with federal and state grants. Today the programs of official and voluntary organizations are becoming more closely integrated, with the effective establishment of liaison services at the national level.

The states are urged, within the limitation of their laws and through the advice of their committees, to participate actively, with appropriate groups, in providing adequate control measures. Moreover, all persons and agencies eligible for federal grants are invited to utilize the available funds to improve existing cancer facilities and to institute new services.

Cancer services may be defined as those elements of a public health program that reduce the cancer problem. It should be mentioned that the state health agencies are permitted considerable latitude in the utilization of their grant funds, and that the federal government has developed no formal directions for control activities within the states; for it is recognized that one pattern cannot be designed to suit all needs. It is requisite that the individual states formulate their own programs.

The primary role of the federal government in cancer control activities within the states is to guide in the development of balanced control measures. Such measures may be obtained through adherence to the basic requirements for a cancer program as outlined by the National Advisory Cancer Council in a report to the Surgeon General, which was published in the April issue of the *Journal of the National Cancer Institute*. The last lines of this report are as follows:

"Cancer is not a disease that can be controlled by the special effort of one group or by one activity. To have a complete service in a state, there must be integration of effort of all organizations and individuals. The agency responsible for the state cancer program should be the stimulator and integrator of the cancer control activities to insure a complete practical program including statistical studies, educational activities, and the provision of the clinical facilities necessary for rendering adequate preventive, diagnostic, and treatment services to the public. To achieve this goal, it is believed that the state health department or the state cancer commission, whichever has the legal responsibility, may properly carry on any activities that will result in making available to all citizens of the state the information and services outlined as the basic features of a state cancer program."

NOTE: At a conference of the State and Territorial Health Officers, December 1–4, 1947, the Committee on Hospital and Medical Services recommended that the Surgeon General of the U. S. Public Health Service encourage the National Cancer Institute to increase activities in undergraduate cancer teaching in medical and allied professional schools, and that the National Advisory Cancer Council establish, within the Institute, a study section on cancer control, with representation of state health officers and state cancer control directors.

Venereal Disease Research Symposium

The Syphilis Study Section, of the National Institute of Health, a group of consultants organized for the purpose of promoting research in the field of venereal diseases, announces a symposium, "Recent Advances in the Study of Venereal Diseases," to be held in the Commerce Building, Washington, D. C., on April 8 and 9.

All interested persons are invited to attend this meeting. Copies of the program will be sent at a later date upon request.

All inquiries should be addressed to Dr. Frank W. Reynolds, Executive Assistant, Syphilis Study Section, Division of Research Grants and Fellowships, National Institute of Health, Bethesda.

The Cell Smear Method of Diagnosing Cancer*

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THE examination of body fluids for the detection of cancer cells dates back to the 19th century. Beale (1860),[1] Sanders (1864),[2] Quincke (1875),[3] and Hampeln (1876)[4] succeeded in identifying tumor cells in sputum, urine, and pleural and peritoneal exudates. Since then, the possibility of diagnosing cancer through the recovery and identification of exfoliated neoplastic cells in the various secretions and excretions of the body has been explored by a large number of investigators. The examination of pleural and peritoneal exudates has found a permanent place in the pathological laboratory. In sputum some investigators, such as Dudgeon and Wrigley of England[5] and H. H. Wandall of Denmark,[6] have reported very good results with the examination of smears, while others found the study of sputum in paraffin sections more dependable. Examination of urine sediment and of gastric fluid for cancer diagnosis has been less successful.

One of the chief factors which have prevented this diagnostic method from acquiring the credit it actually deserves has been the lack of an adequate, simple, and uniform technic. Evidence of this lies in the fact that the interest and confidence of medical men in this diagnostic procedure have markedly increased since such a technic became available some four years ago. I refer to the technic developed in our laboratory at Cornell University Medical College and the New York Hospital in connection with our studies of vaginal smears. The use of this technic in the diagnosis of uterine cancer was advocated in a monograph published in 1943 by Dr. Herbert Traut and myself.[7] The salient points of this technic are the immediate fixation of the smears, the avoidance of drying, and a special staining adapted to cancer diagnosis. A good preservation of the structural details of cells and of their nuclei is far more important in cytologic studies than in studies of tissue sections. One can accomplish much more with an inadequately fixed or poorly stained tissue section than with a poorly fixed and stained smear.

The vaginal smear has been in use as a routine method of cancer diagnosis at The Woman's Clinic of the New York Hospital for the past seven years. More recently its efficiency has been increased by the addition of the endocervical and endometrial smear.[8] During this time over 10,000 cases have been studied. The results as published in our 1943 monograph, and the findings of other investigators as Meigs, Graham, Fremont-Smith and collaborators,[9] Jones, Neustaedter, and McKenzie,[10] Ayre,[11] Gates and Shields Warren,[12] and others, proved the usefulness and dependability of the vaginal smear method in the

* Read before the Laboratory Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 9, 1947.

diagnosis of uterine carcinoma. The most complete statistics available at present are those of Meigs,[13] covering 2,749 cases in which the total error was 3.2 per cent. It is gratifying to note that a general agreement prevails as to the virtues and limitations of this method among the above mentioned investigators and, as we can judge from unpublished reports reaching us, also among many others who are now experimenting with this method in a steadily increasing number of hospitals, public health laboratories, and cancer detection clinics.

It is generally realized that, as a method of final diagnosis, the smear should not be depended upon as much as biopsy or curettage. A confirmation of smear findings by these two methods should always be advised. There are, however, instances of carcinoma in which the smear has been positive and the tissue examination negative. The smear, though less conclusive in itself, has an advantage over the biopsy in that it provides a sampling of the whole epithelial lining of the vagina, cervix, and uterus, whereas the biopsy covers only a limited area.

The biopsy is, of course, superior to the smear in other respects. It provides information as to the pattern and the type of the tumor, its proliferative activity, and invasiveness. On the other hand, the smear possesses its own distinctive features. It is simple, relatively inexpensive, causes practically no inconvenience, permits repeated examinations and check ups, and makes possible the diagnosis of cancer in its incipient stage. It is, therefore, a method particularly adapted to the screening of large numbers of women. Its potentialities in this respect are obvious. It has been stated that should every woman over 30 or 40 years of age have periodic smear examinations at regular intervals, mortality from cancer of the uterus would be practically eliminated. This is a dream which cannot be realized at present. However, as time goes on more women may learn to appreciate the value of such a test.

Nevertheless, an effort to reach a larger group of women through any kind of intensive campaign should be delayed until a sufficient number of pathologists and technicians acquire the necessary training. At present the number of laboratories where such a test can be conducted is insufficient. The realization of this immediate need for training has urged us to organize a special course at the Cornell University Medical College and the New York Hospital. The first course was given in September of this year and was attended by seventy laboratory men, forty-five of whom were pathologists, from various parts of the country. We propose to repeat this special course as long as there is a demand for it. A center of instruction will also be established in our school through a grant awarded to us recently by the National Advisory Cancer Council for the benefit of those who desire a longer and more thorough training.

Since 1944, we have been applying the vaginal smear technic with equal success to other body fluids such as urine, sputum, and gastric, thoracic, peritoneal and other aspirates. The technic applied in all these tests is based on the same fundamental principles and has been described in a number of articles.[14-18]

Thus far we have examined approximately 2,300 cases, 950 of urine sediment, 750 of sputum, 340 of gastric fluid, and 260 of pleural, peritoneal, and miscellaneous specimens. Most of the material was collected at the New York Hospital under the supervision of Dr. Victor F. Marshall of the Department of Urology, Dr. Henry A. Cromwell of the Department of Medicine, and Dr. William A. Cooper of the Department of Surgery. A large percentage of the sputum specimens was sent to us

from the Memorial Hospital, New York City, by Dr. William L. Watson and Dr. Lloyd F. Craver. Specimens have also been received from other hospitals as well as from private physicians.

The results obtained by the examination of urine sediment smears for the diagnosis of carcinomas of the urinary tract were reported in three articles.[15,17,19] In 240 tabulated cases [17] our reports were as follows: Negative reports (our Classes I and II) in 163 cases showed an accuracy of 91.42 per cent. Positive reports (our Classes IV and V) in 58 cases had an accuracy of 94.83 per cent. Of the 19 cases reported as suspicious (our Class III) 47.37 per cent proved to be positive. These figures correspond closely to those given by Schmidlapp and Marshall.[19]

One of the cases included in the above statistical survey deserves special consideration. It was reported by us as a class V positive. The patient had a tumor of the bladder which was removed and diagnosed pathologically as a benign papilloma. On the strength of this diagnosis we tabulated our urine smear report as a false-positive. Thirteen months later the patient returned to the hospital with a recurrent bladder tumor which was diagnosed in the same laboratory as a carcinoma. This happened after the publication of our statistical survey. Should this error in tabulation be corrected, the accuracy of our positive reports would be higher than 94.83 per cent. It is evident that during the patient's first admission this malignant neoplasm was in an early, possibly pre-invasive stage, and its true nature was not recognized in the sections which had been examined. This case is a good example of what has been said before that the biopsy method has also its limitations and that the smear may occasionally prove to be superior to it for detecting early or hidden carcinomas.

Dr. Henry A. Cromwell and I [20] have just completed the tabulation of 298 reports of sputum smear examinations for the diagnosis of carcinomas of the lung. In the positive reports (Classes IV and V) the accuracy was about 95 per cent. In the negative (Classes I and II) about 85 per cent. Of the cases reported as suspicious (Class III) approximately 50 per cent proved to be positive. These percentages are practically the same as the ones quoted above for the urine sediment smears.

In this statistical analysis all Class V reports were correct. In Class IV there were four false-positive reports. Three of these proved to be cases of bronchiectasis. My associate, Dr. Cromwell, called my attention to it and, on a reëxamination of the smears I noticed that the atypical cell clusters which led to the wrong diagnosis had some common structural characteristics. The cells were more of the mucoid type and showed no anisocaryosis nor other nuclear abnormalities. Their grouping in dense clusters was what caused them to appear like neoplastic cells. They probably were fragments of papillomatous growths of the bronchial mucosa. Such outgrowths have been previously observed and described in cases of bronchiectasis. Similar cell clusters have been found by us recently in another case of this type, but this time we were able to recognize their true nature.

It is to be expected that with increasing experience in this new field of cytologic diagnosis our ability to evaluate the many types of cells encountered in the smears will improve considerably. The comparative study of exfoliated cellular elements, normal and abnormal, forms the pivot of our present research activities.* An atlas of colored drawings of different types of exfoliated cells is now being prepared in our laboratory. For this we have the coöperation of a very able artist, Hashime Murayama,

* We are indebted to the Commonwealth Fund for continued support of this work since its inception.

who has developed an exceptional proficiency in this type of work. An exhibit presented at the Atlantic City meeting by the American Public Health Association shows colored enlarged prints of some of Mr. Murayama's original drawings, illustrating various types of exfoliated normal and cancer cells. These drawings are to be published in our Atlas.

In our studies of gastric cancer the results compare well with those of the sputum and urine series except for a somewhat higher percentage of false negatives.[18] There are several reasons for this discrepancy. First, the rapid deterioration of cells in the gastric fluid unless the specimen is fixed immediately and centrifuged without delay. This rapid deterioration has been responsible for the poor state of preservation of approximately 15 per cent of our specimens. Second, the absence of exfoliation in the relatively large groups of scirrhous carcinomas which, as a rule, do not reach the mucosal surface. Third, the frequent presence of swallowed foreign cells from the nasal, pharyngeal, tracheal, and esophageal mucosae and of undigested food particles. These foreign elements tend to confuse the picture and to make the recognition of cancer cells more difficult. With good preservation of a gastric specimen the structural details of the cells are as sharply outlined as those in the smears of other fluids, therefore, making possible an accurate positive diagnosis of esophageal and gastric carcinomas.

The possibility of detecting early asymptomatic or hidden carcinomas by the smear technic has been convincingly proved, particularly for cervical carcinomas, by a rather impressive number of reports. In some cases the corroboration of the positive smear findings required repeated biopsies over a period of several months.

Use of the smear method in the pathological laboratory in conjunction with other routine diagnostic procedures will undoubtedly result in greater diagnostic accuracy. Furthermore, with the general introduction of this method as a public health measure, it is our hope that the number of operable cases of carcinoma will be markedly increased.

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Public Health Nursing in the Cancer Control Program of the U. S. Public Health Service*

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THE nation's concern over the problem of cancer is evidenced by the articles in the press, by comments and discussions on the radio, by Congressional appropriations, and by voluntary fund raising campaigns for cancer control purposes.

In 1937 Congress enacted a bill creating the National Cancer Institute for the purpose of cancer research and control. A specific appropriation of 2½ million dollars was made available in 1946–1947 to states for grants-in-aid for the state cancer control programs. In 1947–1948 this appropriation was increased, and over 5½ million dollars was set aside for these programs, of which 3½ million dollars was allocated to states to assist them in establishing full-time, balanced, cancer control programs. The following conditions are considered in allocating the funds to states:

1. The extent of the cancer problem in the state
2. Financial need of the state
3. Population within the state
4. Population density of the state

This money, which is given to the state, may be used by the state health agency to direct or operate cancer control programs, to pay for services to cancer patients, or for reallocation to other agencies within the state to conduct cancer control activities.

Funds are also available for grants to states for special projects dealing with special phases of the overall cancer program, which some organization within the state may be able to perform alone or in coöperation with the state health agency.

Other features of the grants-in-aid are: (1) The loan of trained Service officers upon request to states to organize, operate, and direct the program; (2) the offer of consultation service on cancer to states from the district offices of the U. S. Public Health Service.

In addition to the grants-in-aid portion of the program, studies will be conducted to determine the extent of the problem and to extend current knowledge in all phases of cancer to professional groups.

The objectives of the nursing activities in the overall cancer control program are: (1) To prepare nurses to help combat cancer by extending the knowledge of the disease to all nurses; (2) to stimulate better case finding methods; (3) to assist in reducing the time between the onset of symptoms and reporting for medical treatment; (4) to help states to develop an adequate follow-up system on cancer patients; and (5) to

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improve nursing care to cancer patients.

Most nurses feel that we have a limited knowledge of cancer and of the care of cancer patients. Cancer was not taught as an entity but was found in all services and in all age groups. Consequently we have to think back to individual cases when we think of cancer. We are still confronted with the same problem, since cancer does affect all age groups and is found in all services. To help us focus our attention on the problem of cancer, we visualize the following program for the coming year.

To assist in establishing postgraduate courses in cancer nursing, we hope that the committee working on the prerequisites for advanced curriculums will be ready to make recommendations for all advanced courses before we outline the contents for the specialty in cancer nursing. In the meantime, we have had a preliminary meeting with one of the universities and will work closely with its staff. As the prerequisites for the advanced courses are not known as yet, some time may elapse before such a program can be developed and the teaching staffs prepared.

Money has been allotted to states for the cancer control programs, and plans for their programs are being made. It is, therefore, essential that some assistance be made available to state directors of public health nursing so that they can give assistance to their cancer control directors in the development of the cancer programs. To meet this need, the Public Health Service has arranged two institutes, each of a month's duration, for its district public health nursing consultants. This program has consisted of two weeks of lectures and observations in the Roswell Park Memorial Hospital, Buffalo, N. Y. (New York State Cancer Hospital); one week in New York City, which included observations at the Strang Clinic, Memorial Hospital, Nassau County Health Department (where the Public Health nurses have integrated cancer in the generalized program), and the American Cancer Society; and a final week with observations and lectures at the tumor clinic at the U. S. Marine Hospital, Baltimore, which is one of the largest and best equipped tumor clinics in this country, and at the National Cancer Institute at the National Institute of Health. The district nursing consultants are, therefore, now in a position to give assistance to state directors of public health nursing in conducting institutes for public health nurses, in developing staff education, and in program planning in cancer nursing.

Concomitantly with this program plans are being made to develop a short course (2 or possibly 3 weeks' duration) to be given for university teaching personnel, consultants, and supervisory nurses in states and in the larger volunteer nursing associations and local health departments. This course will consist of lectures including medical and nursing aspects on the various sites of cancer, such as head and neck, respiratory tract, digestive tract, rectum, breast, female and male genital organs and hormonal therapy, genitourinary tract, and bone; on mental hygiene, and nutrition. Interspersed with the lectures will be slides and movies (which have been secured by our own agency and jointly with the American Cancer Society and other private agencies and institutions) showing cancer in the various sites in earlier and later stages, and illustrating the nursing care to patients.

We shall also assemble data on the common types of metastases as to place, length of time of development, what type of treatment can be given when it occurs, how long the patient will be a bed patient, and what types of nursing service will be needed.

Although our first emphasis on ex-

tending knowledge in cancer will be directed to the teaching, consultative, and supervisory personnel, plans are under way to develop material for the students in the basic public health nursing program of study and for basic nursing schools.

The preparation of nurses already in the field and of prospective public health nurses is essential before the other objectives of our program can be reached. To do better case finding and to reduce delays in reporting for treatment, the peculiarities of cancer must be understood by the nurse. Cancer is a disorderly growth of cells, which serves no useful purpose; one may have this multiplication of cells in any part of the body. Many observations have been made, and many data have been collected on peculiarities due to site, age, race, and sex. Most of us have seen cancer of the skin, as 75 to 80 per cent occurs on the face. This is a common type of cancer; but it is not highly malignant, and under proper treatment 90 to 95 per cent of these cases can be cured. There is more cancer of the skin in the South among the whites than the Negroes. This may be due to the fact that the solar rays, which are known to be carcinogenic, are filtered by the dark skin. Cancer of the skin is also more prevalent among people such as sailors and farmers, who are exposed to the elements. It begins as a small sore which is usually non-painful but continues to enlarge. Nurses should also observe scar tissue, especially from burns, and look for beginning small nodules.

Cancer of the uterine cervix is more common among women who have borne children, but the incidence of cancer of the body of the uterus is higher among women who have never been pregnant.[1]

Studies have shown that the incidence of breast cancer is appreciably higher in women who have no children.[1]

Nurses should also be familiar with the results of various types of animal research. For example, a special research study is being made on the rôle of the milk factor in the etiology of breast cancer in mice. Mice which have been inbred for generations through brother-and-sister matings and are essentially pure stock were observed in a breast cancer study. Certain strains of mice are more likely to develop cancer of the breast, and it was observed that if the new-born mice of a breast-cancer strain were permitted to suckle, even for only a few minutes, they would develop breast cancer at a later date. If the new-born of a mother of a high-breast-cancer strain were not allowed to suckle their own mother, the incidence would be no higher than in a low-cancer strain. Whether this can apply to the human being is not known today. From a hereditary standpoint, it may be a significant factor, especially if further studies show that it applies to human beings.

In order to decide intelligently on proper follow-up and bedside nursing care, studies need to be conducted. We need to know what the average cancer case load is in a generalized public health nursing program, what type of service is needed and by whom it should be given, the trained public health nursing nurse, the graduate nurse, or the practical nurse. The Public Health Service hopes to do such studies in cooperation with many agencies where a bedside nursing program for cancer patients is under consideration or is already being carried out.

To help states with their inservice staff education program, especially where cancer is receiving special emphasis and full-time service is needed, the Public Health Service has given a special orientation in cancer to a small group of public health nursing consultants, who may be assigned to states upon request. These nurses will be on loan for approximately one year at a time.

Those of us who are older public health nurses, whenever we think of the cancer patient, will probably call to mind the extremely ill patients, such as we cared for as student nurses. Their suffering was probably the most excruciating endured by any patient. We may also think of the odors that made it so repulsive to be with the patient. If that is your mental picture of cancer patients, I hope that you will have an opportunity to visit a hospital today where such patients are looked after. It is almost revolutionary in its change. One seldom sees the patient who is suffering the excruciating pain that was common in the earlier days. In fact, very little morphine is given to patients. Palliative surgery is now done, regardless of the age of patients. Persons who are in the 80's have such radical surgery as complete gastrectomy, whole lungs are removed, rectums are removed, radical surgery on the face is done, and new faces are fashioned. In most hospitals where such radical surgery is done, the patients are given highly concentrated diets with huge amounts of vitamins. Plasma is given prior to surgery, and whole blood and plasma are given following surgery. In a remarkably few days these patients are up and about. At an early period, patients are taught to take care of themselves. Colostomy patients, for example, are taught to take an enema, sometimes daily and sometimes every other day, and very often the body regulates itself to having a normal bowel movement once daily. Colostomy dressings in some institutions consist only of paper tissues worn under a two-way stretch garment. When stomachs are removed, the intestines soon modify their function and assume those of the stomach also, and in a remarkably short time the patients gets along on three meals a day. Patients who have had tracheotomies are taught to rinse the inner tube as frequently as needed for cleansing purposes and in some institutions are taught to remove the outer tube also. Patients who have had radical facial surgery have new noses, new ears, and new faces built either by plastic surgery or by prosthesis in our hospitals today.

However, even more important are some of the methods of early diagnosis that are being developed. Some of you have already heard of, and all of you will soon know of the Papanicolaou test, or, as the test will soon be called, CTC (cytologic test for cancer). This test is a simple smear which may be obtained from excretions from the cervix and body of the uterus or may be made from fluids or aspirated materials from other parts of the body, spread on a microscopic slide and properly fixed and sent to a laboratory for a special staining, the Papanicolaou stain. This stain shows cells which have undergone nuclear change. Although it takes trained pathologists or technicians to make the stain and to read the slides, the family physician is able to make the smear in his office when the patient reports for examination, and he then mails the slide to a laboratory for a report. Think what this will mean in early detection of cancer, especially of the genital tract! This test is regarded as a screening method and should be followed by biopsy procedures. In a number of cases, a persistent positive cytologic test has been reported with a repeated negative biopsy. Exploratory operations have been made in such cases which have usually revealed the presence of a malignant tumor. This same test has been applied to bronchial secretions from the lungs, to urine, and to stomach washings. I was told that in a patient with a persistent frontal headache a CTC was made from a discharge from the nose which revealed cancer cells with the Papanicolaou technique. On the basis of this, an

operation was performed, and cancer of the ethmoid was found.

Our research workers feel that there is no one cause of cancer. They also believe that the solution may be found through chemistry. Possibly all people may have the potentiality to form a neoplastic growth of cells, possibly such a growth occurs more frequently in some families than in others. No one knows today why all of a sudden the cells form this disorderly growth. It would seem that with the CTC and with the result of the many years of research, we must be near a solution. You and I are taking part in this study and in so far as we use our knowledge and are ever on the alert for new discoveries which may apply to nursing, we may do a great deal in helping to advance the day when a much larger percentage of the people who are now ill may recover, and many other potential patients may remain well. Today, early detection is the only method of reducing the death rate from cancer. We are on the front line.

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Epidemiology of Colorado Tick Fever*

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ALL available evidence indicates that the transmitting agent for Colorado tick fever is the wood tick, *Dermacentor andersoni* Stiles.[1-3] However, the causative agent has never been isolated from ticks in nature. There are several areas in the mountains near Denver where a number of individuals probably become infected each year. These areas were "flagged" and ticks obtained. These ticks were divided into ten pools of approximately 25 each and then ground in small amounts of normal saline. The supernatant from the centrifuged specimens was injected in equal amounts into each of two hamsters. White blood cell counts and spleen studies were done on these animals and the succeeding carries according to technics previously established.[3, 4] Nine of the ten pools thus studied revealed the presence of Colorado tick fever virus on the basis of white blood cell counts and spleen studies. Neutralization tests were conclusive in five of the nine pools. The other four were not tested. Virus was demonstrated in the ticks from each of the three separate areas "flagged."

The finding that some ticks in nature were infected with the virus of Colorado tick fever led to a study of laboratory infection of the ticks. Two strains of virus were used. One was a long established laboratory strain that had undergone a great many hamster and some human passages. Results with this strain were inconsistent and inconclusive. The other strain had had only several hamster passages.

Clean adult male and female ticks were allowed to feed on infected hamsters. The fully engorged females were permitted to lay. The resultant larvae were divided roughly into equal parts. One portion was ground and injected into a number of clean animals. The remainder were allowed to feed on clean hamsters. In both instances, the leucocyte count indicated infection. Some of the engorged larvae were also ground and injected into clean animals. The resultant nymphs, engorged nymphs, and adults were handled in the same manner as the larvae. In each instance the hamsters showed infection with Colorado tick fever.

The virus could never be demonstrated in the eggs from infected females despite the fact that in the three different attempts that were made, the resultant larvae, nymphs, and adults were found to be infected.

Clean larvae were allowed to feed on infected hamsters. In each instance the resultant engorged larvae, nymphs,

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engorged nymphs, and adults were infected. Clean nymphs fed on infected hamsters likewise showed infection in the engorged nymphal and adult stages.

The adults resulting from all these experiments were eventually refrigerated. Such adults did not give positive results when ground and injected. However, when these refrigerated adults were permitted to remain at room temperature for 96 hours before grinding and injection or were allowed to feed on clean animals, infection resulted. These results parallel those obtained with Rocky Mountain spotted fever by Spencer and Parker.[3]

The ticks used in these experiments were obtained as clean ticks from Dr. R. R. Parker. Random sampling from this pool of ticks in experiments paralleling those already outlined, in every instance failed to show evidence of infection with Colorado tick fever.

Since the dog tick, *Dermacentor variabilis* Say, is closely related to the wood tick, it seemed desirable to determine if this tick could be infected in the laboratory. Dog ticks were obtained through the courtesy of Dr. Robert D. Glasgow and his field staff who are attempting the control of the dog tick on Long Island. Due to unavoidable delays in shipment, all the larvae and nymphs were dead on arrival. Only three adults survived the trip. The identification of the ticks as *Dermacentor variabilis* Say was confirmed by Dr. Glen M. Kohls, Senior Entomologist of the U. S. Public Health Service. A male and female were allowed to feed on a clean hamster with the idea of raising a new generation of adults which could be used in the experimental work. The hamster showed a low white blood cell count as did the succeeding animals in the serial passages. Furthermore, the spleens from these hamsters gave a picture characteristic of Colorado tick fever.[4] Some of the resultant larvae were ground and injected into hamsters. The white blood cell counts and splenic reactions were characteristic of Colorado tick fever. Experiments with the resulting nymphs and adults were negative.

Since it seems that the virus of Colorado tick fever was found in dog ticks from Long Island where the disease has never been reported, the following experiments were carried out in an attempt to establish the identity of this disease agent beyond any reasonable doubt.

1. Serum from infected hamsters caused no reaction following injection into eight male guinea pigs. These animals were followed with temperature readings twice daily for 30 days, after which they were autopsied. Rocky Mountain spotted fever, tularemia, or Q fever would have caused a reaction in these animals.

2. The agent passed through a 24 μ filter as do our western strains.

3. The Long Island virus was neutralized by human Colorado tick fever immune serum, although there are some antigenic differences when compared to our western strains.

Serum from an individual who had never had Colorado tick fever has no neutralizing ability against either the eastern or western strains.

4. Hamster spleens from animals infected with tularemia, Rocky Mountain spotted fever, and Q fever were studied. In each instance, if a reaction occurred, it could be distinguished from that caused by Colorado tick fever. These spleens were obtained through the courtesy of Dr. John Oliphant, Senior Surgeon of the U. S. Public Health Service. The reaction in the Long Island strain was identical with that observed in our own western strains.

5. Hamsters were injected with the minimal infective dose of the eastern virus. These animals were bled on the 4th day and allowed to recover. The white blood cell counts indicated infec-

tion. Three weeks after the initial inoculation, these same animals were divided into groups of approximately 8 and each group injected with three minimal infective doses of three of our western strains. Four days later the white blood cell counts were repeated and the spleens removed for study. The hamsters were not infected.

The experiment was reversed. Six western strains, including the three just referred to, were each injected into 8 animals. These showed infection on the basis of white blood cell counts. Three weeks later inoculation with three minimal infective doses of the eastern virus into the surviving animals gave normal white blood cell counts and negative splenic reactions.

These observations, coupled with a characteristically lowered white blood cell count in the hamster, lead us to believe that Colorado tick fever or some similar disease probably exists on Long Island.

SUMMARY AND CONCLUSIONS

1. The virus of Colorado tick fever has been isolated from several pools of wood ticks, *Dermacentor andersoni* Stiles, obtained by "flagging" in areas where individuals have presumably acquired their disease. Characteristic white blood cell counts, spleen reactions, and neutralization tests established the identity of these strains. The wood tick can be considered as a transmitting agent for Colorado tick fever.

2. Laboratory experiments indicate that this virus is transmitted to progeny by infected adult ticks as are Rocky Mountain spotted fever and tularemia. Infection in either the larval or nymphal stages is also transmitted to the resultant adults. The virus is not manifest in the eggs from infected females, although it can be demonstrated in the larvae, nymphs, and adults from such eggs. These results were achieved with a recently isolated strain of virus.

3. Guinea pig inoculation, neutralization and filtration experiments, white blood cell counts, spleen studies, and cross-immunity experiments indicate that the virus of Colorado tick fever or a very closely related virus has been demonstrated in adult and resultant larvae dog ticks, *Dermacentor variabilis* Say, obtained from Long Island.

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Post-war Public Health Problems in a Large American City*

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THE cities of America found themselves in the position of attempting to maintain health services throughout the war period under marked difficulties. There was always the feeling, however, that these difficulties were but temporary, and with the war over would disappear. The war has been over now for two years and many of these problems are still with us.

This paper is not designed as a health officer's lament but as a review of some of the difficulties encountered in maintaining health services already programmed, and in undertaking new projects in the public health field, together with some of the answers that have been found, at least partially, to be successful in maintaining old and undertaking new services.

The problems are of two types, first, those which result from changes within the city itself which have exaggerated old problems and added new, and second, those difficulties which face a health department in trying to adjust staff and facilities to meet the changed situation growing out of shortages of trained personnel, difficulty in getting equipment, and maintaining adequate budgets against the day when these will be available.

First, let us look at those changes that have taken place in the city. Detroit is an industrial city. Like every other industrial center there was a large expansion during the war and much of this has remained. A study just completed by the Census Bureau indicates that the population of the Detroit Metropolitan Area increased 18 per cent from 1940 to 1947. The people who came to Detroit to engage in war work came from rural areas to a very large extent. Brought into the setting of an intensively active industrial city, these people have not readily adjusted to city life and therefore present many problems in personal and family health.

That such an influx of people has created a serious housing problem goes without saying. This too is not peculiar to Detroit alone but because of it a tremendous crowding into old housing has occurred in spite of efforts to maintain minimum building standards and discourage the use of substandard housing. Strange as it may seem however, by 1940 standards, there should be no housing shortage, for while the population has increased 18 per cent, the number of housing units has increased 24 per cent between 1940 and 1947.

How is it then that there are so many families seeking housing? It is largely due to people using more housing. In other words, the average dwelling unit now houses 3.6 persons whereas in 1940 it housed 3.86 persons. Those who have means to buy a house are buying and spreading out but the less fortunate economically are crowded into the old

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housing where most rental properties are. Hence the health problems related to overcrowding in certain parts of the community remain.

Another change in our city, which again is not peculiar to Detroit, has been the great increase in births which has now reached the high figure of 29 per thousand from a low of 16.2 in 1936. That this has presented a problem in prenatal care, obstetrical service, and hospitalization goes without saying. By dint of intensive effort and through shortening hospital stay for confinement it has been possible to meet this situation and provide facilities so that 96 per cent of the babies born in 1946 were born in a hospital compared with 77 per cent in 1940 in spite of the tremendous increase in numbers. At the same time infant mortality has dropped from 37.4 per thousand live births in 1940 to 30.3 and maternal mortality from 3.0 to 1.2.

With a labor market that is calling for more help than ever before in peacetime, the situation is still a difficult one. Men and materials are not readily available, for instance, when repairs must be made to correct insanitary conditions so that those responsible find a ready excuse for the existence of such conditions or for their tardy correction.

Looking now at the problems within the health department itself we find that personnel shortage particularly as it applies to specially trained and professional staff continues to be the most troublesome problem. The Detroit Health Department, which includes in its activities the administration of 2 large hospitals, has been a large employer of nurses. Before the war the staff of public health nurses in the department proper numbered 390, at Herman Kiefer Hospital 276, and at William H. Maybury Sanatorium 104. These services are now down to 205 public health nurses, 178 hospital nurses at Herman Kiefer Hospital, and 61 nurses at Maybury Sanatorium. While there is some prospect of additional nurses being available in the future, so far the new nurses employed have not even replaced retirements and other losses, and many of our staff are working beyond the usual retirement age of 65.

What can be done to maintain services in the face of such a situation? In the field of public health nursing it is indeed difficult to substitute other personnel for the field nurse. However, careful analysis has shown that formerly a great deal of nursing time was taken up with clerical duties and other office services that could just as well be done by persons other than nurses. Again, the substitution of letters to parents, to patients, and to physicians have resulted in quite satisfactory results in lieu of certain kinds of nursing visits. Group instruction at health centers or other meeting places is also helpful. Much good work can be done in this way though it has the disadvantage of not attracting some of those who most need such instruction.

Shortage among hospital nurses has presented a somewhat difficult problem though, here again, careful analysis of what was formerly done by the nurse brought out the fact that much time-consuming effort was expended on duties that could just as well be done by persons without the professional training of the graduate nurse. So, here again, untrained persons have been taught to do the simpler tasks of caring for the sick under graduate nurse supervision. It has, however, not been as simple as it sounds, for many general duty nurses have been quite unaccustomed to directing the work of others and so adequate supervision has often been lacking.

It is becoming more and more recognized that there is room in the nursing field for a person of less training than the graduate nurse but who has had some formal training for the simpler nursing techniques. For want of a bet-

ter name this person is now being called a practical nurse. A systematic training program covering 48 weeks of didactic and bedside experience has been undertaken with university direction. This program was originally sponsored by the nursing organization itself but now with the assistance of a grant from the Kellogg Foundation has been firmly established. Applicants for such training are appearing in good numbers. A permit to practice as a practical nurse is issued by the Detroit Health Department after evidence of completion of a satisfactory course. State recognition has not yet been provided.

These are some of the possible ways in which the critical shortage of nurses may in part be alleviated.

The public health laboratory is another field which is finding great difficulty in securing trained technicians in the face of markedly increased demand for service. The public health laboratory finds itself unable to compete with industry and other private laboratories in a field under-supplied with good technicians. True, a good laboratory can train for some of the technical work itself but not too large a number of workers can be absorbed in this way. It is very discouraging to have brought a capable person along to a point where he is really valuable and then have him go elsewhere. Higher compensation is of course needed in public work in this field but this is not the whole answer for there is sadly needed a more systematic recruiting and training program for laboratory personnel.

Other shortages of trained personnel have been troublesome but those discussed have continued to be hardest to meet.

The housing problem has presented difficulties to the sanitary bureau of the department in that it has been for some years the responsibility of the department to see that in the interest of health the building code standards of the city are maintained. A systematic house-to-house inspection has been carried out in older portions of the city and orders issued for compliance with the code. Because of shortages of labor and materials it has been exceedingly difficult to get many of these corrections done and it has been, and continues to be very difficult to condemn housing that is beyond repair and unfit for habitation when there is no place to put the occupants. In spite of this, some progress has been made and 248 houses have been razed in the last 7 years. A good proportion of repairs have been done and a bill of particulars is available to the owner so that he knows just what must be done.

Food services and food handling have presented problems that are for the most part due to the excessive turnover of employees in this field. The securing of responsible workers in the food handling industries continues to be troublesome. Food handlers are required to secure a permit from the Health Department which is issued after an examination by a physician for evidence of communicable disease, an x-ray examination of the chest by the department, and attendance at an instruction period covering the sanitary handling of food. This service, together with inspection of the establishments themselves conducted to a large degree on an educational basis, have resulted in good service for the most part. When the food industries become more stabilized this problem will be less troublesome. It now involves over 50,000 food handlers and over 12,000 food establishments.

New services have been added. As an example, the war gave great impetus to the use of human blood as an aid in the treatment of many conditions. The American Red Cross, because of its success in procuring blood during the war, became interested in meeting the civilian needs of peacetime but felt they

should have cosponsors in the Health Department and the Medical Society. A community blood bank was instituted and began operations in April, 1946. This bank meets the emergency needs of all the hospitals of the community. The larger hospitals for the most part still maintain their own banks and draw on the community bank when short or in need of special types; the smaller institutions and the city-owned hospitals draw all their blood needs from this bank. The Red Cross procures the donors and does the bleeding and the Health Department laboratories do the testing and typing of the blood. This project has been quite successful and now dispenses from 1,000 to 1,200 pints of whole blood per month.

Another new project that is being undertaken is that of rat control. Northern cities have not paid much attention to the rat as a health problem until recently. As studies have revealed that Weil's disease is a serious menace, that rat bite fever occasionally occurs, and that endemic typhus has been slowly but steadily creeping north, it has been borne in on us that in addition to the economic losses due to rats, there is also a health menace in the presence of these rodents. In the past 10 years there have been 71 cases with 27 deaths from Weil's disease in Detroit.

A united effort to cut down the rat population of Detroit has been started in which the Health Department shares by undertaking the problem of ratproofing and otherwise destroying rat harborage through inspection of properties and issuance of orders for corrections which must be complied with at the owner's expense through private contractors. This program is just getting under way so results cannot be reported upon.

Old problems that have remained with us are many, but two outstanding ones are venereal disease and tuberculosis. During the war and since, venereal diseases has been on the increase. There seems to be evidence that this year there is finally a trend downward. Active attention to case finding and development of rapid treatment facilities, it is hoped, are beginning to tell as the population becomes more stabilized. Tuberculosis remains a real problem. No gain in lowering the mortality rate has been noted since before the war. Because of the shortage of staff, hospital beds have had to be closed and waiting lists developed, a condition which had not been present in Detroit for many years. Active case finding has continued however and also an intensive treatment program. It now appears that streptomycin has a very definite place in the treatment of some forms of tuberculosis and it is gratifying to be able to report that with a limited supply of this drug good results have been obtained.

One of the problems faced is that of maintaining a proper budget structure. Salaries have been advanced so that it costs much more to employ the smaller staff of today than the larger one before the war. Since sizable sums were returned as surplus during the past 2 years because nurses could not be found to fill the vacant positions budgeted, we now find ourselves cut back with very little leeway for recovery of personnel. With a quite good health record in the main it will not be easy to convince budgetary agencies of the need of providing funds for these positions when they can be filled but it is felt every effort must be made to maintain standards.

The post-war problems of a large American city are then those to a large degree growing out of the disturbed conditions of the war together with the new services that naturally should be expected of a progressive health department.

This hurried and also limited portrayal of some of the problems faced in our city will perhaps serve to accent-

uate the challenge to public health initiative and effort that is present where man continues to make problems in the field of health by massing together in ever increasing numbers in our American cities.

British Summer School in Health Education

The Central Council for Health Education will hold a residential Summer School in Health Education at "High Leigh," Hoddesdon, Hertfordshire (near London), August 11 to 25, 1948, under the direction of Dr. Robert Sutherland, Secretary, Central Council for Health Education.

The object of the school is to present the general content, principles and practice of health education to a wide variety of students, including educational and medical administrators, doctors, teachers, youth leaders, public health nurses, industrial nurses, industrial welfare workers, training organizers and students.

Lectures are planned to cover the basic knowledge needed by health educators and will include lectures in physiology (by Professor Samson Wright), psychology (by Professor James Drever), the biology of infection (by Dr. Robert Cruickshank), and social factors affecting health (by Professor J. M. Mackintosh).

There will be opportunity for attendance at exhibitions of health education material, books and health films, and for acquiring technique in visual aids. Social activities, optional visits, nature study expeditions, sports, physical recreation, ballroom and folk dancing will all be arranged under expert leadership. Local authorities have been asked to consider the nomination of students to attend the school. The cost of the course per person will be about $68, including board and lodging. Applications should be sent in before March 31, 1948. Those wishing further details should write to the Medical Adviser and Secretary, The Central Council for Health Education, Tavistock House, Tavistock Square, London, W. C. 1. The Director would especially welcome persons from the United States and Canada.

Essentials of Good Local Public Health Administration*

Summary of a Panel Discussion

PREPARED BY RICHARD F. BOYD, M.D., F.A.P.H.A.

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IT was the consensus of the panel that it is highly desirable that there be a "Book of Law" behind the health department. The statutes must permit the establishment and maintenance of adequate local health departments and must provide a legal basis for the work which is done by the health officer and his staff. It is also highly desirable that the statutes permit the establishment of new administrative areas for public health purposes.

The panel was quite generally agreed that the rendering of efficient service is a most important factor in public relations. It was quite generally accepted, however, that the community must be informed in an adequate fashion in regard to the services rendered by the health department if the health department is to have proper public appreciation. It was thought that public support was best assured by means of the establishment of strong citizens' councils or committees for coöperative planning. In general, it is the health officer who must carry the major responsibility in so far as public relations is concerned. It is highly important that every member of the staff of the health department consider himself or herself to be a health educator. In many health departments, however, the services of a specialized person in the field of health education will be necessary and desirable.

The group believed that each health department should have a good board of health in which no one group holds a dominant position. The board should have proper legislative powers but should not usurp the administrative and executive duties which properly belong to the health officer. If local health departments are to operate successfully there must be in the background a strong state health department. The staff of the state health department should encourage newly appointed health officers to make surveys of the public health situations and facilities in their health jurisdictions. On the basis of this study, there should be developed public health programs which are designed to meet the problems peculiar to these areas.

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

It is axiomatic that the health department must be adequately financed. The exact amount needed on a per capita basis for the financial support of the health department was a matter about which there was not uniform agreement. The majority of the panel and audience appeared to feel that the statement of $1.00 per capita, which was adopted by the Subcommittee on Local Health Units as a minimum in 1942, was not adequate with the decreased purchasing power of the dollar as of 1947. There was considerable support to the suggestion that a minimum of $1.50 per capita should now be adopted. It was unanimously agreed that the financial support of the health department should be derived principally from tax funds provided by local, state, and federal government. It was also believed that the local governing body should contribute in a material way to the financial support of the health department rather than leaving the larger share of the financial support to the state and federal government.

There was considerable disagreement in regard to the proposal that the health officer also serve as administrator of the local hospital. It is the impression of the writer that the majority of the panel and audience felt that it would be more advisable to establish new administrative areas sufficient in scope to make economy of operation possible rather than to attempt to combine the administrative functions of the health department and the hospital.

It was the consensus of the group that the staff of the health department should be appointed on the basis of merit through the agency of a Merit or Civil Service System. In communities in which Merit or Civil Service Systems are either weak or not present, it was thought that the regulations governing the subsidies to local health departments might be used to improve the method of appointment of personnel. The personnel policies for the health department should include provisions for adequate salary ranges, salary advancements, and provisions for retirement. The group thought that the health officer should be appointed by the board of health and that he should have the privilege of appointing the remainder of the staff with the approval of his board. It was also felt that there is a great need for the establishment of reciprocal relations between governmental units having retirement systems in order that public health personnel may transfer from one local health department to another or from a local health department to the state health department more readily.

The importance of freedom from political interference in the health department was stressed. In this regard it was agreed that the board of health should be non-partisan in nature. It was also suggested that the members of the local governing body should be kept well informed in regard to the activities of the health department in order that they would have proper appreciation of the services rendered to the people of the community and the necessity for allowing the health officer to carry out his responsibilities unhampered by political interference.

In order that a health department may operate as effectively as does a successful business, it was considered necessary that business-like procedures be maintained. These include the establishment of the proper lines of authority. The health officer should recognize that the health department is not a "one-man show" and should obtain qualified personnel to whom responsibility may be delegated. The wise health officer develops his public health program in conference with the members of his staff and then delegates to them the responsibilities necessary to enable these programs to be carried on in a successful fashion.

Water Supply

Engineering Section

THE committee has continued to pursue its objective in appraising developments leading to safer water supplies. New developments within the year do not justify a detailed discussion at this time of any one item. On the other hand, the committee wishes to draw attention to current trends having a direct bearing upon the potability of water supplies.

CHLORINATION

There has been continued progress in the application of free residual chlorination and in the use of improved tests for free residual chlorine, as distinguished from combined residual chlorine. The orthotolidine-arsenite test has been modified by representatives of the Wallace & Tiernan Company, Inc., to facilitate the determination of residuals beyond the range of the usual standards through the use of the so-called "dilution method" or the "drop dilution method." One important aspect of the first method is the use of ordinary distilled water for dilution purposes rather than specially prepared water of zero chlorine demand. This development is of practical significance because free residual chlorination frequently requires the maintenance of residuals in excess of 1 p.p.m. at the control point. It is pertinent to emphasize again that these tests will not accurately distinguish between free and combined residual chlorine if the temperature of the sample being tested is over 60° to 70° F.

These newer tests have shown that many raw waters contain sufficient manganese to produce a false color with orthotolidine or sufficient ammonia to result in the formation of chloramines, that is, combined residual chlorine. Under the latter circumstances many operators have assumed that conventional chlorination rather than chloramination was being practised, merely because ammonia was not applied. These tests therefore are of basic importance even when free residual chlorination is not practised intentionally.

Our committee last year drew attention to the basic importance of the pH of chlorinated waters. Frequent references in the literature are made to the phrase "free residual chlorine" as being synonomous with hypochlorous acid. More technical literature, however, rightly distinguish between molecular chlorine, hypochlorous acid, and the hypochlorite ion. This distinction is of basic practical importance because molecular chlorine is not present as such in chlorinated waters having the usual pH values and also because hypochlorous acid is much more active as a disinfectant than the hypochlorite ion. The relative proportion of free residual chlorine which is present as molecular chlorine, hypochlorous acid, and as hypochlorite ion is shown in Table 1.

It will be noted that molecular chlorine is present only at low pH values and that above pH 7.5, 50 per cent or more of the free residual chlorine is present as the hypochlorite ion. Therefore, disinfecting properties of the

COMMITTEE ON WATER SUPPLY

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TABLE 1

pH	% of Free available chlorine as: Molecular Chlorine	Hypochlorous Acid	Hypochlorite Ion
4.0	0.5	99.5	0.0
5.0	0.0	99.5	0.5
6.0	0.0	96.5	3.5
7.0	0.0	72.5	27.5
8.0	0.0	21.5	78.5
9.5	0.0	1.0	99.0
10.0	0.0	0.1	99.9

hypochlorite ion must be considered when waters of high pH value are chlorinated. As mentioned in the report of this committee last year, unpublished data from the Harvard Engineering School are reported to disclose that the hypochlorite ion is much less active as a disinfectant than chloramines or combined residual chlorine at pH values greater than about 9.0, in spite of the adverse effect of high pH values upon disinfection by chloramines. On the other hand, Butterfield and coworkers [1-3] have reported that free residual chlorine, which for the reasons noted above would be hypochlorite ion at high pH values, is more effective than chloramines throughout the pH range.

It may be recalled, however, that the studies as to the destruction of the virus of poliomyelitis by chlorine by Lensen, Rhian, and Stebbins [4] show that, while the action of chloramines is much slower than that of free residual chlorine, nevertheless the action of chloramines is much less influenced by changes in pH than that of free residual chlorine.

Irrespective of the effects of pH of chlorinated waters, it is significant to note that the virus of poliomyelitis can be inactivated by doses of free residual chlorine or of chloramines producing residuals used in best current practice, provided a sufficient contact period is available. This is another example of the importance of the contact period in modern chlorination practice and of the need for selecting control points disclosing the residuals prevailing after appreciable periods.

CHLORINE DIOXIDE

Chlorine dioxide has been continued in use with general success as a taste control process, especially when dealing with chlorophenol-like tastes. Recent studies by Ridenour and Ingols [5] have shown that chlorine dioxide is an active disinfectant, and that the action is not as much influenced by high pH values as that of chlorine. The recent development by the Mathieson Alkali Works, Inc., of a laboratory technique to distinguish between residual chlorine dioxide and residual chlorine in water will permit such studies to be simplified and to be conducted on a plant scale.

FLUORINATION FOR THE PREVENTION OF DENTAL CARIES

Research as to whether the application of sodium fluoride to a public water supply will result in significant reduction in the incidence of dental caries is in progress at the following places: Brantford, Ontario; Evanston, Ill.; Grand Rapids and Midland, Mich.; Newburgh, N. Y.; Sheboygan, Wis. and at the Southbury Training School, Southbury, Conn.

It is premature to draw conclusions as to the effectiveness of this treatment process. It seems pertinent at this time, however, to draw attention to the anticipated value of such treatment and to consider the administrative policy pertaining to so-called medication of water supplies.

It has been emphasized that the number of people with dental caries is increasing at a more rapid rate than the use of dental services by the general public. Experience in the public health field demonstrates the difficulty of insuring individual action through education, and conversely that any procedure which will benefit the public as a group will secure more prompt and economical results. The cost of adding about 1 p.p.m. fluorine to a water supply is about 10 cents per capita per year. The

actual expenditure for dental care averages about $4 per capita per year for the total population, but studies have shown that the expenditure would have to be about $12 per capita per year were dental service utilized by all age groups to the fullest extent needed.

The *natural* presence of fluorides in potable waters in amounts of about 1 p.p.m. has been found to lead to a dental caries incidence about one-third that prevailing in communities served with water supplies containing little or no fluorine. Therefore if the research now in progress demonstrates that the application of sodium fluoride will secure results comparable to those observed with natural fluoride-containing waters, the cost of dental care would be reduced two-thirds, or about $8 per capita per year, for those using complete dental services. These economic savings are significant and since the benefits would prevail in spite of individual neglect, the current discussion of the advisability of medicating public water supplies warrants careful consideration.

It is realized that water purification chemicals used heretofore, with the possible exception of sodium iodide used for a short period in the treatment of several supplies for the prevention of goiter, are intended to improve the character and quality of supplies. The addition of a beneficial ingredient to a public water supply is admitted to be a novel idea requiring careful consideration. Any demonstration of satisfactory results through current research, with the benefits outlined above, will force the crystallization of attitude upon this important subject. In the meantime the principles enunciated by Wolman[6] should be given consideration by public health and water supply officials, namely:

1. Water works officials should avoid medicating water supplies pending definite results of controlled research now in progress and until the results have been reviewed and assayed by competent medical, dental, and public health officials.

2. The treatment of diseases other than through the medication of community water supplies should be thoroughly evaluated from the professional and economic standpoint.

3. The universal application of chemicals to potable waters for medication purposes should rest upon only substantial unanimity of opinion by official medical and public health agencies.

4. There should be complete concurrence between officials of the water department and of the health department of a municipality considering such treatment.

HIGH RATE FILTRATION

The committee wishes to emphasize the need for concerted effort, on the part of engineering staffs of state departments of health, to evaluate the public health significance of high rate flocculation and sedimentation units and of high rate filtration, so that the official approval of plans will be based upon sound policy which will protect the public health, and at the same time not hamper present trends in the development of relatively smaller and less costly treatment plants for the more economical but effective treatment of water supplies. There would appear to be need for revising the policy of a number of states if the present trend is established as general practice.

SODIUM CONTENT OF POTABLE WATER AND DISEASE

The sodium content of potable water supplies such as zeolited softened waters has not been considered heretofore from the standpoint of potability. According to Bryant and Blecka,[7] however, the sodium content of food and water may be one of the important factors affecting high blood pressure and associated heart disease. The upper limit is stated to be 200 mg. per day, which is equivalent to the consumption of 2 liters of water containing 100 p.p.m. of sodium. A great deal of research is required before this problem can be

settled, but the subject is being discussed at this time to focus attention upon the possible importance of many ingredients of potable waters which may have been overlooked heretofore and to encourage further study so that this problem can be clarified.

NITRATE CONTENT OF WATER AND CYANOSIS

Studies by Comly [8] and by the Iowa Department of Health [9] have focused attention upon the possible connection between nitrate content of potable water fed to infants, or used in the preparation of milk, and cyanosis or discoloration of the skin due to changes in the blood. Tentative conclusions have been reached that the nitrate content should not exceed 20 p.p.m. Ordinarily the nitrate content of potable water is less than this value. Investigations in Iowa, however, disclose values as high as 900 p.p.m., with values over 50 p.p.m. in about 10 per cent of the total number of samples examined. It would seem that these excessive concentrations of nitrates must be of natural origin or due to the use of artificial fertilizers, as the nitrification of sewage in the soil apparently would not lead to values such as those noted. Studies are being continued of a few selected wells on farms to secure more detailed information.

TOXIC INGREDIENTS OF POTABLE WATERS INCIDENTAL TO ALGAE GROWTHS

The possible presence of toxic ingredients in potable waters supporting a prolific growth of blue-green algae continues to be considered because such growths have been associated with outbreaks of water-borne gastroenteritis [10] where the water supplies have conformed to bacteriological standards of the U. S. Public Health Service. The literature [11, 12] indicates that the toxic agent in algae affects the central nervous system of animals but does not produce enteritis in animals. No definite data are available, however, as to any effect upon human beings. There is need for research in this field so that the possible rôle of algae growths in water-borne gastroenteritis can be settled.

BACTERIAL STANDARDS OF QUALITY

Attention has been drawn heretofore by this committee to the need for a more precise and definite indicator of bacterial pollution of potable waters than the heterogeneous coliform group. While the committee has endeavored to accumulate information upon the relative sanitary significance of various members of the coliform group, conclusive information is not available. Basic research therefore is greatly needed as to bacteriology of potable waters.

RESEARCH

Previous references to research draw attention to the report to be presented at this meeting by the committee of this section on "Exploration of Research Needs." * So far eight out of twenty-three research grants in the field of sanitation, recommended by the National Advisory Health Committee, deal with water supply. Major emphasis is being placed on laboratory technique. One project is for the study of toxins which may be liberated by plankton. It would seem very desirable to augment this list by a basic study of water-borne gastroenteritis, with special reference to the possible rôle of water-borne virus infections.

BACTERIAL WARFARE

There would appear to be no occasion for this committee to discuss this subject were it not for the wide publicity given to the discussion of bacterial warfare by Rosenberry and Kabat.[13] It seems pertinent to record

* Report of the Committee on Exploration of Research Needs. Blucher A. Poole, *Chairman*. To be published in the 1947–1948 *Year Book*.

that the results of this comprehensive study disclose that intestinal pathogens, transmittable by public water supplies, were not favorable for the purposes of bacterial warfare due to sanitary safeguards and also because this group of organisms otherwise was not considered so satisfactory for such purposes as air-borne pathogens.

Policy as to bacterial warfare naturally rests with the armed forces, and it does not seem wise or necessary at this time to encourage public discussion. On the other hand, public health and water supply officials obviously are concerned with civilian aspects of the technical problems associated with this subject, and it would seem that these problems might be considered in a quiet way pending further developments.

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Development of the Massachusetts Blood and Blood Derivatives Program*

Lessons Gained from Two Years' Experience

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FOR over 30 years it has been possible to transfuse blood from one human being to another without undue risk. The saving of life and the hastening of recovery accomplished by this procedure is too well known to be again recounted here. Until the last decade, it was usually sufficient to depend on emergency calls upon relatives, friends, professional donors, or generous minded citizen groups for the supply of blood required. Even before the second World War, however, the amount of blood needed, and the manifold uses to which it could be put, had led to the development of methods of storing blood for use when needed, and of separating the blood plasma which could then be stored for long periods and used as a substitute in certain medical or surgical emergencies. Thus, the way was prepared for the gigantic blood donor program which the American Red Cross undertook in 1942, and through which our armed forces were supplied with blood plasma on a scale never before considered possible. The collection of over 13,000,000 pints of blood from volunteer donors by the Red Cross during this program represents one of the truly great medical and social achievements of the war.

The mounting needs for blood and plasma due to advances in medicine and surgery, and the increasing labor and expense in procurement of the needed quantities of blood, presented a similar if smaller problem on the home front. Various means to meet these problems were devised. Not only did a great many individual hospital blood banks arise, but community blood procurement and processing programs were developed, such as the Greater Cincinnati Blood Bank in which some 12 hospitals participated, and the Worcester County Medical Society program in Massachusetts, which served an area of some 1,500 square miles. The Illinois Department of Health pioneered in organizing a state-wide blood plasma program, in coöperation with hospitals throughout the state. The Michigan Department of Health undertook a different type of civilian plasma program, similar in principle to the Red Cross program in its method of mass donor procurement through operation of a mobile bleeding team. The Michigan program faced and met the growing problem of the cost of plasma transfusions to the patient, by

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furnishing blood plasma without charge, regardless of the quantity required or the financial status of the patient. Meanwhile, programs of one or the other type also were developed in North Dakota, Vermont, Iowa, Utah, and elsewhere. Thus the need for community-wide or even state-wide organization of blood procurement and distribution had become nationally recognized some 3 to 4 years ago.

All this is familiar history now to public health workers, and particularly to laboratory personnel, upon whom as a rule has fallen the burden of working out practical methods to meet the growing civilian needs for blood and its products. And these needs grew faster than programs could be established or expanded. Few persons, at the start of the war realized the extent to which whole blood could and would be used in military surgery; but the astounding results achieved by transfusion of large quantities of blood, as it became available in the various theatres of operation, disclosed similar possibilities in therapy at home. Finally, development of blood fractions—albumin, gamma globulin, fibrin foam, fibrin film, fibrinogen coagulum, etc.—demonstrated that through suitable laboratory manipulation blood could be made to yield therapeutic or prophylactic agents for which no equal existed, and that by this means one unit of blood could be put to many uses.

It was with this background that the Massachusetts Department of Public Health approached the project of organizing a state-wide blood program, in the spring of 1944. Consultation with leaders among hospital administrators, medical societies, blood bank administrators, and investigators in the field of blood and its products was supported by visits to several of the most actively functioning military and civilian blood programs in the eastern United States and Canada. A questionnaire, sent to all member hospitals in the Massachusetts Hospital Association, provided an estimate of the needs of the state for whole blood and blood plasma. The Department's Antitoxin and Vaccine Laboratory provided an adequate nucleus for the laboratory operations of such a program. The department's policy, a half-century old, of free distribution of the products of this laboratory, provided the experience upon which to base a similar policy as regards human blood.

OUTLINE OF THE PROGRAM

The basic features of the plan that was adopted were as follows:

1. The program should be designed and operated so as eventually to serve the entire population of the Commonwealth, irrespective of financial status or geographic handicaps. During its development, special attention would be given to aiding communities without adequate local blood resources.

2. Laboratory and administrative features of the program should be so designed as to make possible the provision of whole blood or any of its derivatives. Only in this way could continuity for the program be assured regardless of what changes might come about in medical practice; and only in this way could the utmost efficiency in utilization of the blood be assured.

The American Red Cross undertook to enroll volunteer blood donors through its 90 Massachusetts chapters. A mobile unit was organized, consisting of a doctor, 4 nurses, a medical technician, and 2 blood custodian truck drivers. Actual bleeding commenced in December, 1945. A fifth nurse was added in November, 1946, to increase the daily capacity of the unit, and a second unit was put into operation in April, 1947. Each unit operates on a pre-arranged schedule, remaining in each community 1 to 4 days, depending upon the size of the community. Donors are questioned and briefly examined for their health and physical fitness as blood donors.

The donor's blood group and Rh type are determined by the slide method, the hemoglobin is classified by the copper sulphate method as adequate or low, and a pint of blood is drawn from each acceptable donor into a Fenwal type bottle containing 75 ml. of acid-citrate-dextrose ("ACD") solution. The blood is immediately chilled to about 5° C., placed in a pre-cooled insulated box, and returned by truck to a 5° C cold room at the laboratory immediately after the clinic day ends. Operating in this fashion, it is quite feasible to collect from 100 to 125 pints of blood during the 6 hour period that each clinic operates.

Since distribution of whole blood was begun in the summer of 1946, a pilot tube containing ACD solution, attached to each bleeding bottle, has been filled with 3-5 ml. of residue blood from the bleeding tube. At the same time a sample of clotted blood is secured for a Hinton test. Stickers, bearing the serial number given to the donor during his examination, are fastened to the pilot tubes and the bleeding bottle. Bloods received at the laboratory are carefully checked for agreement of serial numbers, and for consistency between histories, master summaries and other data received from the clinic. Blood donations found unacceptable because of identity are rejected. Certain others may for various technical reasons be designated for use only in plasma or fractions. A Hinton test and a blood group and Rh type are performed by tube method at the department's Diagnostic Laboratory. No blood is released for use as whole blood unless the blood grouping and typing in the field agrees with that determined at the laboratory. Blood is held in the cold room for at least 48 and preferably 96 hours from the time of bleeding, in order that any viable spirochetes present will die. Bloods found acceptable for distribution are tagged to show the date of bleeding, expiration date, blood group and Rh type, serial number, etc. A post card type report form is attached to each bottle, to be returned by the physician or hospital receiving the blood.

A large part of the blood distributed has been sent out by express in insulated refrigerated boxes, on a more or less regular schedule, to various hospitals anywhere from 25 to 150 miles from the laboratory. The remainder is issued to messengers coming to the laboratory, and some has been sent by airplane where necessary. All shipments are iced.

Following confirmation of each donor's blood group at the Diagnostic Laboratory, a certificate is made out indicating the date and place where he gave blood, and his blood group and Rh type. These certificates are forwarded to the local Red Cross Chapter to be distributed directly to the donors. At the time of donation a pin is given to the donor, the color of the pin (and the ribbon which may also be attached) indicating the total number of times he has donated, including his wartime donations for the armed forces. By these and other methods the donor is made to feel that he is part of a continuing community program.

In accordance with established evidence regarding the preservative powers of ACD solution, citrated whole blood is given an expiration date 21 days after bleeding.

Inevitably, a good deal of the blood shipped from the laboratory will expire unused. Hospitals have been most coöperative in returning this outdated blood, a major part of our program having been concerned with a study of the salvage possibilities in such blood. Indeed many local hospitals now send us outdated blood drawn in their own clinics. All returned blood in satisfactory condition is utilized by separating the plasma which is then fractionated.

EXPERIENCE GAINED BY THE PROGRAM

As of October 1 we have held 338 clinics in 106 different communities. Twenty-six thousand, one hundred and forty donors have been registered, and 22,098 pints of blood have been collected. The lessons which we have gained from this experience may be summarized as follows:

Enrollment of donors: The Red Cross has been entirely responsible for donor enrollment throughout the program, although until recently the department's share in recruitment publicity was considerable. Quotas have been set for each community, based upon predicted blood requirements per capita. The requirement was first set at 1 per 150 inhabitants, was raised to 1 per 100 when whole blood distribution was begun, and obviously must soon be raised further, if the steadily growing requirements of the community are to be met. Some communities have consistently oversubscribed their quota; others have done variably at successive clinics, whereas others have done consistently poorly. The differences seem to be related largely to the energy and the inherent ability behind local donor procurement. Interest which is lively at the start often lags on subsequent visits, although some communities which started badly have made extraordinary comebacks. By and large, however, it has become increasingly apparent that an adequate and steady flow of blood donations could only be assured by a far more extensive, expert, and continuously operating educational and publicity organization than has as yet been established. The best operating month to date, May, 1947, brought in 2,696 pints, which was only 64 per cent of the scheduled quota for the period.

When the program was begun, blood and its products were promised—during the developmental period of limited supply—primarily to the participating communities, and elsewhere in emergencies. With the institution of an active whole blood program it became necessary to establish a higher priority for the donor or his family. This developed, through the imagination of a local chapter, into a plan since widely described as "blood insurance," whereby a donor could protect his immediate family for 1 year, insuring that they would be furnished with any amount of blood needed during this period. This has furnished a major incentive in the enrollment of many donors, and has had a particular appeal in industrial groups, lodges, etc. A similar but more rigid system has operated for some time at the San Francisco County Blood Bank. The difficulties in the "insurance" system are: (1) It commits the sponsor of the program to provide something which he cannot be assured of delivering when needed. (2) It leads to a not inconsiderable amount of manipulation on the part of persons wishing to obtain the benefits of the "insurance" arrangement, although the majority of people have been honest, reasonable, and coöperative. (3) It works hardship on individuals or groups unable to donate because of health, circumstances, etc. (4) It conflicts with the basic objectives of the American Red Cross in enrolling donors, and with the incentive for many voluntary blood donations, since it departs from the altruistic basis for donating blood. Such an insurance type system of blood priority would of course be unnecessary for a program which had sufficient blood available to meet all requests; but, for a program where the supply of incoming blood is irregular and inadequate, some type of priority system is imperative, and we have yet to learn of one which is inherently more just and workable.

It is not necessary to employ the insurance concept literally; we now state simply that top priority (aside from emergencies) is given to those persons (including their families) who have

helped make the program possible by donating blood.

Our experience in connection with blood procurement may then be summarized in two statements: *First:* No whole blood program can succeed without a flow of blood which is not only adequate but uniform; for even during a temporary lag in donor procurement, the normal demands plus emergencies, plus the 3 week expiration date, can exhaust an apparently large stock of blood in less time than anyone not familiar with the problem can imagine. *Second:* The means by which such a steady and adequate flow of blood can be assured has yet to be demonstrated. This is said not with the intent to discourage anyone, but merely to point out a fact which must be faced.

Selection of donors: Because of the delicate public relations factors involved in a civilian program, the requirements for acceptance of a donor have been set very high. From the point of view of the safety of the blood for the recipient, the 2 major problems which have arisen have been a history of malaria or exposure to malaria, and a history of jaundice. Potential carriers of malaria parasites are especially numerous with the return from overseas of servicemen. Our policy has been to accept all such donors but to use their blood only for plasma or fractions. The jaundice problem is more difficult. Our rule has been to exclude entirely anyone with any history of jaundice, not clearly of obstructive origin, occurring at any time in his life. This of course does not rule out the subclinical but presumably infective case of hepatitis, while on the other hand it undoubtedly excludes many potential donors whose blood would be harmless. The probability that infected donors have indeed been bled is strengthened by the fact that we have had, in the last 6 months, 4 cases of hepatitis among the personnel coming in direct contact with blood or plasma at the laboratories. The danger to the recipient can be very much diminished by the growing practice of administering homologous-type unpooled plasma (a procedure which is practical for a hospital bank but presents tremendous obstacles to large scale application) and can presumably be eliminated wherever heat-treated normal human serum albumin can be substituted for plasma, or perhaps by the use of irradiated plasma. A satisfactory method of eliminating the virus of infectious hepatitis from whole blood, however, has yet to be found.

Separation of plasma for processing: It has been our experience that blood drawn into ACD solution does not settle as readily as citrated blood. Fresh blood, ACD-preserved, centrifuged in a No. 13 International centrifuge for 45 minutes at 2,000 r.p.m. yields an average of 260 ml. of plasma. This is less than the standard yield obtained from citrated blood.

Plasma from outdated blood has been separated without centrifugation, because of the belief that the plasma hemoglobin content would be too high if such bleedings were centrifuged. A recent study, however, in which 9 bleedings averaging 32 days old were centrifuged, showed that although individual hemoglobin values were sometimes very high, the average plasma hemoglobin content rose from an initial level of 52 mg. per 100 ml. to a final level of 89 mg. per 100 ml., which is well within the permissible limits for fractionation. This method of separation is under further investigation. The use of Sharples or DeLaval type separation is also being explored, although it is probable that the hemoglobin rise in old blood handled in this fashion will be excessive.

Fractionation of plasma from outdated bleedings: Even the most efficiently operated whole blood program will result in the accumulation of considerable blood which has passed its expiration date without being used. The plasma

from such blood is deficient in certain labile elements such as prothrombin, and therefore is not suitable for general distribution as normal human plasma. However, it appeared reasonable to assume that many of the principal components of the plasma would be virtually unchanged at the end of this period. We have, therefore, fractionated 2 batches of outdated plasma, and a large batch of four year old frozen OCD plasma. The heat-treated normal serum albumin obtained from such sources has been equal to the best obtainable from fresh plasma both as regards purity and stability; on clinical trial it has also proved entirely satisfactory. Gamma globulin similarly prepared is of high stability and higher than average antibody content. It would appear probable, therefore, that the problem of salvaging outdated blood may be solved in large part through fractionation.

Distribution of grouped and typed whole blood: We have distributed 10,654 pints of whole blood since May 1946. The problems involved in safe and effective handling and transporting of whole blood are essentially technical, and can be solved with sufficient funds, reasonable ingenuity and unceasing vigilant supervision. The problem of supplying the desired blood group and Rh type in the quantity desired, however, involves human frailties which are difficult to cure. Our most acute difficulty has been the almost universal desire for "universal" Group O blood—especially the Rh negative variety. Because of this tendency we have frequently had in stock three to five times as much A-Rh Negative as O-Rh Negative blood, although the latter type is actually somewhat more plentiful. It is apparent that only by extended and persistent education of hospital doctors and pathologists—plus a tireless and hard-boiled day-to-day supervision of distribution—can this difficulty be corrected.

Collaboration with local hospitals: Despite the pessimistic observation above, collaboration with local hospitals has on the whole been very satisfactory. We have made it clear from the start that we could not attempt to supply the entire needs of any local area, except in those few communities with no facilities for local blood procurement. With many hospitals we have established an agreement under which local donors may be bled at the hospital, their names, blood groups, etc., being forwarded to us and the local Red Cross Chapter, so that they may be given credit for donating to the state program. This three-way collaboration between the laboratory, the hospital, and the local Red Cross Chapter points the way to the creation of sustained and effective community blood procurement facilities, such as will be needed locally for a long time, regardless of the extent and usefulness of larger programs.

Donor reactions: The reaction rate among donors to the Massachusetts program has been unexpectedly small. This is no doubt due in part to the large percentage of repeat donors, carried over from the wartime program, who have sustained our program. However, it has been greatly aided by careful selection of donors, and above all by the maintenance of an atmosphere in the clinic which is calm, unhurried and genial. The importance of having the donor enjoy the whole procedure and feel at home in the clinic cannot be overemphasized—not only for the immediate effect in prevention of reactions but for the recruitment of enthusiastic repeat donors.

CONCLUSIONS

Two years' experience in operation of of a blood donor program in Massachusetts has shown that many of the difficulties foreseen in such a program were real. Donor procurement has varied greatly, and at times has fallen to such a point that the continuity of the pro-

gram has been imperilled. Whole blood distribution has been complicated not only by the uneven flow of blood but by widespread misunderstanding as to its proper use, as well as by the difficulties inherent in the introduction of a new blood distribution system in localities where other systems were already established. Nevertheless, it has been found possible to meet these difficulties to a large extent, and in so doing to supply adequate amounts of safe, correctly typed blood to communities which had previously had no dependable supply.

The operation of a plasma fractionation program in conjunction with the whole blood program makes possible the utmost in efficient utilization of blood. The finding that plasma from outdated blood can be successfully fractionated opens up new possibilities in procurement of adequate supplies of certain fractions, as well as further increasing the efficient use of the blood procured.

The future of such programs as this will be tied up to an increasing extent with the nation-wide blood program recently announced by the American National Red Cross. The requirements of the future may make the needs of the present appear pale by comparison. In Massachusetts, the blood and plasma requirements in 1943 were equivalent to 40,000 donations. In 1946 this figure had risen to 85,000 and the estimate for 1947 is 125,000. These figures make no allowance for fractions, and no one can foretell to what extent their use will further increase the total amount of blood required. It is estimated that about 1 out of every 35 people will have to donate once a year, in order to furnish the amount of blood which the nation will need. To reach this level of donations throughout the nation will take several years. Meanwhile the demands on local, regional or state-wide blood programs will increase. The experience obtained in the Massachusetts program indicates that, with sufficient effort, it should be possible to organize and establish successful programs. A blood program has only 2 requirements: funds and blood. Public understanding of the value of such a program should lead to the provision of both in adequate quantities.

Studies Showing the Effect of Changes in the New (9th) Edition of Standard Methods in Relation to the Bacteriological Analysis of Milk*

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IN many communities in the United States, one or more of the alternative bacterial standards based upon plate counts, microscopic counts, or reduction tests, is utilized in determining the grade of raw milk supplies to be pasteurized. Generally the procedure used follows that given in *Standard Methods for the Examination of Dairy Products*. In the next (9th) edition of this publication, certain changes in procedure have been made which are intended to improve the accuracy and reliability of the results obtained by the respective methods.

EXPERIMENTAL

This report is based on a preliminary analysis of data obtained during the past year, utilizing the changed procedures in the bacteriological analysis of inspected milk supplies. In order to compensate for any seasonal differences, samples of milk delivered by the same producers were obtained during the fall, winter, spring, and summer. The bacteriological analysis included (a) plate counts, at the present incubation temperatures of 37 ° and 32 ° C., and also at 35 ° C. which will be substituted for 37 ° C. in the next edition of *Standard Methods;* (b) direct microscopic counts, using standard staining procedures and also various modified stains, and (c) reduction tests, inverting the methylene blue tubes hourly, as required in the next edition, and also using the dye, resazurin, which will be included for the first time in the 9th edition of *Standard Methods for the Examination of Dairy Products*.

PLATE COUNTS

The present (8th) edition of *Standard Methods* permits incubation at either 37 ° or 32 ° C. For some years it has been recognized that incubation at the higher temperature is unsuitable in that it is above the optimum for the bacteria ordinarily present in milk, and that incubation at 32 ° C. is definitely advantageous. The current trend in public health laboratories is for incubation of pathogens at 35 ° C. instead of 37 ° C. The present (9th) edition of *Standard Methods for the Examination of Water*

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and Sewage accepts 35° to 37° C. as the standard incubation temperature for agar plate counts and coliform tests. The A.P.H.A. Standard Methods Committee on Examination of Milk and Milk Products determined by means of questionnaires that incubation of milk plates at 35 ° C. was acceptable to most directors of state and city laboratories, although there was a demand that 32 ° C. be used by those who understood the advantages of incubating milk plates at that temperature. Hence both 32 ° C. and 35 ° C. are the standard temperatures of incubation stipulated in the 9th edition of *Standard Methods*.[1]

Several groups of research workers[2,3] have shown that the standard plate count of many individual samples of milk is higher when plates are incubated at a temperature of 32 ° C. than when incubated at 37 ° C. Little work has been done with 35 ° C. as the incubation temperature for milk plates.

In the experimental work reported upon, all samples of milk were plated in three dilutions, and plates were counted within and outside of the standard range of 30 to 300 colonies in order to note any discrepancies in counts at different dilutions. However, only those counts secured in accordance with the requirements of *Standard Methods* were used in tabulating the results. All plates were incubated in water-jacketed incubators and their temperatures were recorded daily, using thermometers checked for accuracy with one certified by the National Bureau of Standards.

Table 1 presents a tabulation of plate counts and direct counts of raw milk to be pasteurized at one season of the year, grouped according to reduction times by the methylene blue test. This illustrates the general relationship of plate counts at the three incubation temperatures, both to each other, and in relation to microscopic clump counts, as well as reduction times. By classifying the counts according to reduction times, the table presents a wide range of comparative counts, from low to extremely high. It is apparent that there is a greater difference between counts obtained at 37 ° and 35 ° C., than between those at 35 ° and 32 ° C. Usually the plate count at 35 ° C. is only slightly lower than the 32 ° C. count.

MICROSCOPIC COUNTS

While there has been no essential change in the procedure required by *Standard Methods* for the direct microscopic count, several modified stains have been proposed by others. In connection with the present studies, replicate preparations were made, stained by several procedures, and carefully examined. The detailed results will be made available in a separate paper. For the present report, data were obtained by the standard procedure, using triplicate smears of each sample made on 1″ x 3″ microscope slides. A record was made

TABLE 1

Average Plate Counts of Raw-to-Plant Milk and Microscopic Clump Counts, Grouped by Methylene Blue Reduction Time

Reduction Hours	*Plate Count*			*Microscopic Count*
	37° C.	*35° C.*	*32° C.*	
1	28,000,000	36,000,000	25,000,000	7,400,000
2	4,700,000	5,200,000	5,600,000	4,300,000
3	1,800,000	2,100,000	2,300,000	2,500,000
4	940,000	1,700,000	1,500,000	1,500,000
5	480,000	670,000	690,000	1,100,000
6	130,000	220,000	230,000	400,000
7	99,000	190,000	190,000	270,000
8	160,000	280,000	290,000	510,000
9	24,000	47,000	53,000	300,000

of the clump count in each microscopic field examined, counting in some instances twice the number of fields prescribed by *Standard Methods* for milk of the respective grade.

By referring to the last column of Table 1, it will be noticed that there is a tendency for the clump counts in the very high count samples to be somewhat lower than plate counts of the same samples. When the plate counts are lower, the direct clump count tends to be higher than the plate count. These trends show up more definitely in a majority of the individual samples.

REDUCTION TESTS

Present values of methylene blue reduction tests in terms of plate or microscopic counts have been based on earlier studies, some not using the present standard agar, with much of the earlier work based on a different salt of methylene blue, using tablets of less dye content. The next edition of *Standard Methods* changes the procedure by requiring the hourly inversion of each tube, a procedure recognized as yielding a closer correlation with plate counts and microscopic counts.

Portions for the reduction tests were removed from the well mixed sample by sterile pipettes, and placed in sterile test tubes containing the dye, the tubes being kept in ice water. After all portions were added, the tubes were placed in a large, thermostatically-controlled water bath with agitation of the water so that the tubes were heated to the required temperature of 37 ° C. in a short time. When the tubes reached the desired incubation temperature they were closed with rubber stoppers that had been boiled, the tubes were inverted three times and replaced in the water bath.

The first reading was made after incubation for 30 minutes and the tubes were again inverted once. The second reading was made 1 hour after the first reading, and all samples reduced at the second reading were recorded as reduced in 1 hour. Samples were inverted after every reading and results recorded up to 8 hours. All samples not decolorized in 8 hours were recorded as reduced in 9 hours.

In some instances duplicate samples were also incubated in a water bath at 35 ° C. Although more work is to be done on this phase of the problem, the few samples studied at two temperatures showed a longer reduction period in some samples at the lower temperature.

METHYLENE BLUE

Table 2 summarizes the results by the methylene blue reduction test, showing the percentage of samples in each reduction group that fall in one of three grade groups, based on plate counts at

TABLE 2

Percentage of Raw-to-Plant Milk Falling into Plate and Microscopic Clump Count Groups, Classified by Methylene Blue Reduction

Reduction Hours	Samples Total	Count under 200,000				210,000–1,000,000				Over 1,000,000			
		Plate Count			Clump Count	Plate Count			Clump Count	Plate Count			Clump Count
		37 °	35 °	32 °		37 °	35 °	32 °		37 °	35 °	32 °	
½	4	0	0	0	0	0	0	0	0	100	100	100	100
1	15	0	0	0	0	0	0	0	0	100	100	100	100
2	47	0	0	0	0	6	6	6	2	94	94	94	98
3	51	8	6	6	0	33	22	22	29	59	73	73	71
4	56	34	25	25	9	45	38	38	52	21	38	38	39
5	47	68	47	45	19	23	43	38	49	9	11	17	32
6	48	81	73	71	23	17	25	25	73	2	2	4	4
7	33	88	85	82	48	12	12	15	45	0	3	3	6
8	25	92	84	76	44	8	12	20	52	0	4	4	4
9	12	92	83	92	50	8	8	0	42	0	8	8	8

TABLE 3

Percentage of Raw-to-Plant Milk Falling into Plate and Microscopic Clump Count Groups, Classified by Resazurin Reduction

		Count under 200,000				*210,000–1,000,000*				*Over 1,000,000*			
		Plate Count				*Plate Count*				*Plate Count*			
Reduction Hours	*Samples Total*	*37 °*	*35 °*	*32 °*	*Clump Count*	*37 °*	*35 °*	*32 °*	*Clump Count*	*37 °*	*35 °*	*32 °*	*Clump Count*
1	72	4	4	4	1	6	4	4	7	90	92	92	92
2	104	23	15	15	8	39	33	34	37	38	51	54	56
3	80	65	55	53	19	28	33	35	63	8	13	13	19
4	83	94	84	82	41	5	13	14	52	1	2	4	7

37 °, 35 °, or 32 ° C., and on the direct microscopic clump count.

If one applies the 3-out-of-4 method of grading milk, it would seem that 75 per cent of the samples should fall within the same grade group. From Table 2 it may be seen that in the count group "under 200,000" with plate counts at 37 ° C., the 75 per cent figure corresponds with a methylene blue reduction time between 5 and 6 hours. With plate counts at 35 ° C., 75 per cent corresponds with a reduction time slightly over 6 hours. It will be noted that when the direct clump count is considered, only 50 per cent of the samples fall in the low count group, even by the 9 hour reduction period.

RESAZURIN

An alternative reduction test using resazurin has been included in the 9th edition of *Standard Methods*, and equivalent values for this procedure are still to be established. Two methods of reading the test are included, the "one hour" and the "triple-reading" test. In this work both tests were followed but only the "triple-reading" test results are reported. The end point in this test was considered as reduction beyond a certain color standard (P 7/4 according to the Munsell system).

Certified dye tablets were used in preparing the dye solution. Samples were examined at hourly intervals and inverted after each reading. A record was made of the stage of reduction of all samples at each hour, but only the end point reduction beyond P 7/4 was used for this report.

Table 3 summarizes the results by the resazurin reduction test, showing the percentage of samples in each reduction group that appear in one of three grade groups, based on plate counts at 37 °, 35°, or 32° C., and on the direct microscopic clump count. All samples not reduced in 3 hours were recorded as reduced in 4 hours for the purpose of this paper, but complete records were kept up to 8 hours.

From Table 3 it may be seen that most of the samples reducing in 1 hour fall into the higher plate count group (over 1,000,000). However, some samples that reduced in 1 hour appear in the lower plate count group. A further microscopic study of these samples shows they contain a large number of leucocytes. It has been reported[4] that leucocytes have a quick reducing effect on resazurin. The leucocyte content of these particular samples varied from 2 million to 23 million per ml., and the methylene blue reduction time varied from 4 to 9 hours. In the count group "under 200,000" by plate counts, a figure of 75 per cent of the samples corresponds with a resazurin reduction time between 3 and 4 hours. On the basis of the direct microscopic clump count, only 41 per cent of the samples are in the low count group, even after 4 hours.

GRADE CLASSIFICATION OF RAW-TO-PLANT MILK

Milk control officials may be primarily interested in any effect that changing the incubation temperature to 35° C. may have on samples that would now be classified in a certain grade on the basis of incubation at 37° C.

Table 4 shows the grade classification of the same samples when incubated at each of three incubation temperatures. Using the 37° C. count grouping as a basis, the percentage change to other groups at 35° C. and 32° C. is recorded. These groups are based upon the grade limits used in the *Milk Ordinance and Code* recommended by the U. S. Public Health Service.

From Table 4 it may be seen that of the Grade A samples by 37° C. plate counts, over 80 per cent were still within the same grade when plate counts were made at 35° C. and at 32° C. However, only 37 per cent remained in the Grade A group by the microscopic clump count. Under the Grade B classification 28 per cent and 34 per cent of the samples were moved to a lower grade by plate counts at 35° C. and 32° C., and 34 per cent by the clump counts.

Thus by plate counts at 35° C. and 32° C., a higher percentage of Grade B samples at 37° C. was placed in a lower grade group than was true for the Grade A group. However, by the clump count method a higher percentage of Grade A than Grade B samples was placed in a lower grade group.

TABLE 4

Changes in Grade of Raw-to-Plant Milk by Plate Counts at 35° and 32° C., and by Clump Counts

Plate Count at 37° C.			Percentage of Samples in Grades A, B and C								
			Plate Count								
			35° C.			32° C.			Clump Count		
Grade	Count	Samples Total	A	B	C	A	B	C	A	B	C
A	Under 200,000	157	85	14	1	82	18	0	37	54	9
B	210,000–1,000,000	71	..	72	28	..	66	34	..	66	34
C	Over 1,000,000	111	..	1	99	..	..	100	..	..	100

GRADE CLASSIFICATION OF PASTEURIZED MILK

So far only a limited number of samples of pasteurized milk have been analyzed at the three incubation temperatures.

Table 5 records the results obtained. With the pasteurized milk a greater

TABLE 5

Changes in Grade of Pasteurized Milk by Plate Counts at 35° and 32° C.

Plate Count at 37° C.			Percentage of Samples in Grades A, B and C By Plate Count					
			35° C.			32° C.		
Grade	Count	Samples Total	A	B	C	A	B	C
A	Under 30,000	34	40	24	35	35	18	47
B	31,000–50,000	7	14	29	57	..	14	86
C	Over 50,000	41	..	..	100	..	..	100

percentage of the samples was placed in lower grades by the change in incubation temperature from 37 ° C. to 35 ° C. and 32 ° C. than was the case with raw-to-plant milk. Others [5] have shown similar results in plate counts on raw and pasteurized milk.

SUMMARY

1. A comparison of raw-to-plant milk samples plated at 37 °, 35 °, and 32 ° C. confirmed the general experience that counts at 37 ° are materially lower than at 32 ° C. Our results indicate that incubation at 35 ° C. yielded plate counts only slightly lower than those obtained at 32 ° C.

2. Most individual samples showed a definite increase in count when incubated at 35 ° C. instead of at 37 ° C. However, over 80 per cent of the low count samples (under 200,000) at 37 ° C. remained within that grade when 35 ° or 32 ° C. was used.

3. With samples classified at 37 ° C. as Grade B (210,000–1,000,000), 72 per cent to 66 per cent remained within that grade at 35 ° C. and at 32 ° C. respectively.

4. Only 37 per cent of the individual samples in the Grade A plate count group at 37 ° C. remained in that group by the direct microscopic clump count.

5. Results obtained by the methylene blue and resazurin reduction tests are now being analyzed in relation to alternative bacterial standards.

6. With the pasteurized milk samples, a greater percentage was placed in lower grades by the change in incubation temperature from 37 ° C. to 35 ° C. and 32 ° C. than was the case with raw-to-plant milk.

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A City Department of Health Program on the Improvement of Mechanical Dishwashing*

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THERE are no good practical methods for the routine testing of machine dishwashing. The sanitarian has examined the machines visually for improper operation and cleanliness and has checked water temperatures and bacterial contents of washed and rinsed dishes, but he has had no yardsticks for measuring fully the proper operation of the machine.

The writers,[1, 2] have developed apparatus and techniques for measuring washing effectiveness, and time and temperature of rinse for good sanitization. The apparatus and techniques reported were primarily for research purposes, however some of the procedures appeared adaptable to routine field use. Also some of the findings suggested tests which might prove useful in checking dishwashing machines.

As a result of the work reported, a tentative plan and standards for field use were formulated as follows:

PROCEDURE

1. *Time of inspection*—All dishwashing machines to be inspected when in operation.

2. *Temperature measurements*—The temperature of both the wash and rinse water to be obtained by passing an accurate thermometer through the machine with a load of dishes.

3. *Flow pressure of the rinse water*—The flow pressure to be obtained by attaching a pressure gauge to the fill pipe with a hose connection, opening the rinse valve and measuring the pressure.

4. *Measurement of the efficiency of the wash cycle*—The effectiveness of the wash to be measured by passing test plates through the machine.

5. *Bacterial content of wash water*—The bacterial content of the water to be obtained by collecting samples of the wash water for bacteriological examination.

6. *Detergent concentration*—Detergent concentration to be obtained by measuring alkali content of samples of the wash water and comparing with a control alkali graph of the compound used.

7. *Bacterial content of washed and rinsed dishes*—The bacterial content of both washed and rinsed dishes to be obtained by swabbing the surfaces following the procedure recommended by the U. S. Public Health Service.[3]

STANDARDS

1. *Temperatures*—The temperature of the wash water should be between 130 and 140° F. The temperature of the rinse water should be 170° F. or higher.

2. *Time intervals*—The time interval of washing should be not less than 30 seconds for washing and not less than 10 seconds for rinsing.

3. *Flow pressure of water*—The flow pressure should not be less than 20 pounds per sq. in.

4. *Washing efficiency*—Test plates should show not more than 10 soil units when measured by the Surface Analyzer reported

* Presented at a Joint Session of the Laboratory and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947. This study was made possible through a grant from the National Sanitation Foundation.

in previous publications.[1, 2] Test plates to be prepared by the soiling machine previously reported.[1, 2] The wash period shall be 40 seconds.

5. *Bacterial content of rinsed dishes*—The bacterial population of dishes should not exceed 100 per unit. (Bacterial population of wash water and washed dishes were obtained for research purposes.)

6. *Detergent concentration*—The proper concentrations would vary with the hardness of the water and the type of compound used. For use in this particular program, the concentrations should be between 0.2 and 0.3 per cent.

The value and applicability of such a plan of procedure and accompanying standards were tried out on a local community, first, to survey accurately a typical area to learn the need of checking and second, to attempt compliance with the tentative standards.

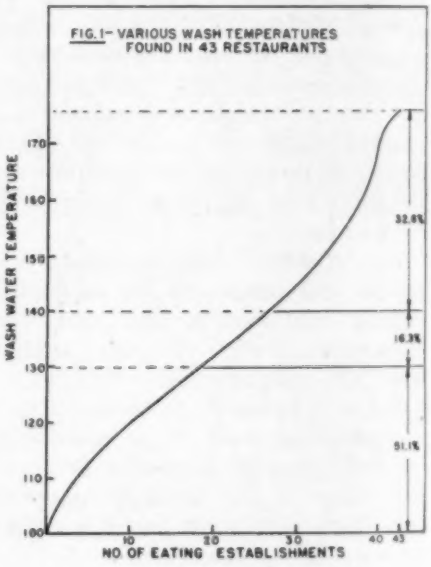
A local city department of health in a city with a population of approximately 100,000 agreed to work with us. The program was directed entirely by the city sanitarians and our laboratory conducted all the necessary tests. All contacts with the local restaurants were made by health department personnel, because we wanted the whole study to be made in such a manner that it could be duplicated by any health department that had laboratory facilities. Only in this manner could a practical plan be worked out successfully.

The first phase of the work consisted of a survey of all single tank machines in the city. Two tank machines were omitted because the researches in our laboratory up to the time of this report had been limited to single-tank door-type machines. Forty-three machines were surveyed.

Although most of the machines were checked on two different occasions, the report of the first visit will be presented. In all instances the second visit gave approximately the same results as the first visit. Rinse temperatures varied considerably on each machine because in establishments where an inadequate supply of hot water was found, the temperature of the rinse water fell as the operation period progressed.

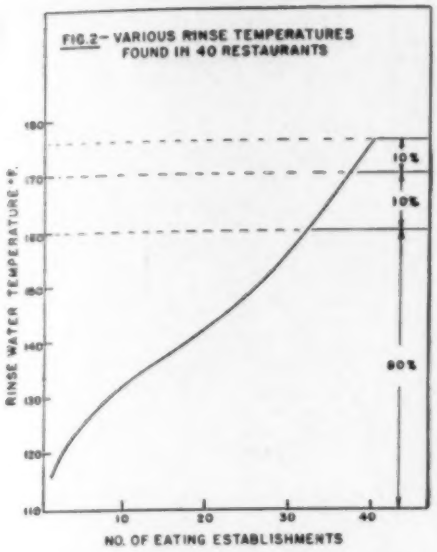
WASH WATER TEMPERATURES

The wash water temperatures ranged from 104 to 176° F. The results are presented in Figure 1. Only 8 (16.3 per cent) of the machines had wash temperatures between 130 and 140° F. Twenty-two machines (51.1 per cent) had temperatures under 130° F., and 3 had temperatures under 110° F. Fourteen machines (32.6 per cent) had temperatures in excess of 140° F., and one had a temperature of 176° F.



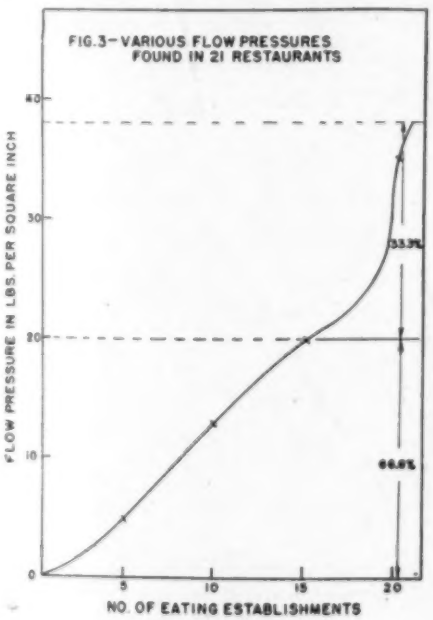
RINSE WATER TEMERATURES

Rinse water determinations were made on 40 machines. Three machines had no rinse operating, either due to mechanical failure or to actual shut-off by the owner. Rinse water temperatures ranged from 114 to 176° F. Only 4 machines had rinse temperatures of 170° F. or higher. Eight machines (20 per cent) had temperatures in excess of 160° F. Thus 32 machines (80 per cent) were operating with non-lethal rinse temperatures.



FLOW PRESSURE OF RINSE WATER

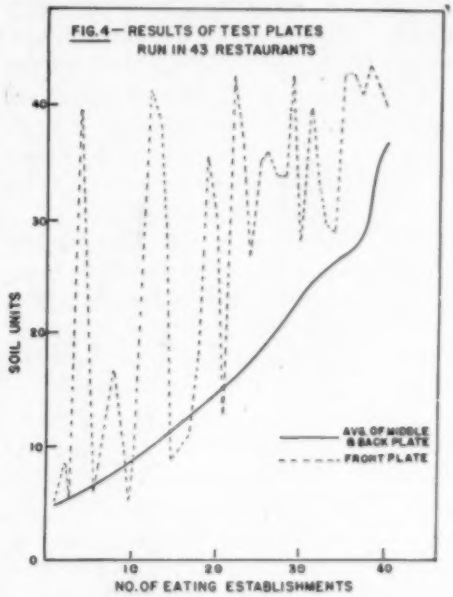
Flow pressures on 21 machines were made by attaching a pressure gauge to the fill pipe in the wash tank and then measuring the pressure when the rinse valve was open. The other machines were so designed that this method of checking could not be applied. The pressures are presented in Figure 3.



Only 7 machines had flow pressures between 20 and 40 pounds per sq. in. Six machines had pressures under 10 lbs. per sq. in. and 3 gave 0 pressure. Fourteen machines (66.6 per cent) with pressures less than 20 lbs. per sq. in. were operating unsatisfactorily.

TEST PLATE DETERMINATIONS

The test plate determinations were made by placing 3 plates in a plate rack, placing 1 plate in the front slot (right), 1 in the middle, and 1 in the back slot (left). The plates were slanted up so that washing action would be done by the upper sprays which were previously found to be most effective for washing plates. The results are presented in Figure 4. The soil

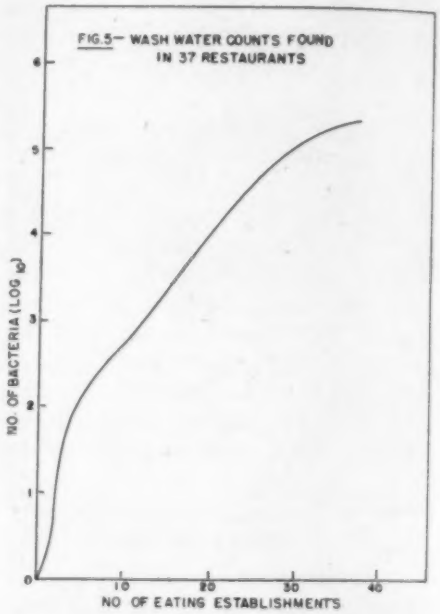


units of the middle and back plates are averaged to obtain the effectiveness of washing. The front plate was omitted because the design of most of the machine is such that this plate is not properly washed. The results on 40 machines are reported. Only 11 machines showed soil units under 10. Five machines showed less than 10 soil units on all 3 plates. On the basis of a 3 plate

test, 35 machines were doing an unsatisfactory job of washing.

BACTERIAL CONTENTS OF WASH WATER

The bacterial counts of the wash water were obtained by plating appropriate dilutions of the wash water in tryptone glucose extract agar and incubating the plates at 37° C. for 48 hours. The data are presented in Figure 5. The bacterial counts ranged from zero to 200,000 per ml. Eight machines had counts in excess of 100,000 bacteria per ml. and 4 machines had zero counts. Two of these machines had wash temperatures in excess of 170° F., and the other had just been filled with fresh water at the time of the inspection. Later inspections of the latter two machines revealed high counts. These data indicate no particular public health hazard but will be discussed later in the interpretation of swab counts of rinsed dishes.

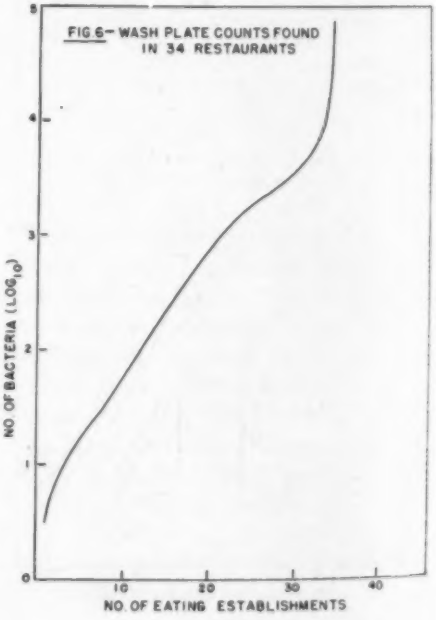


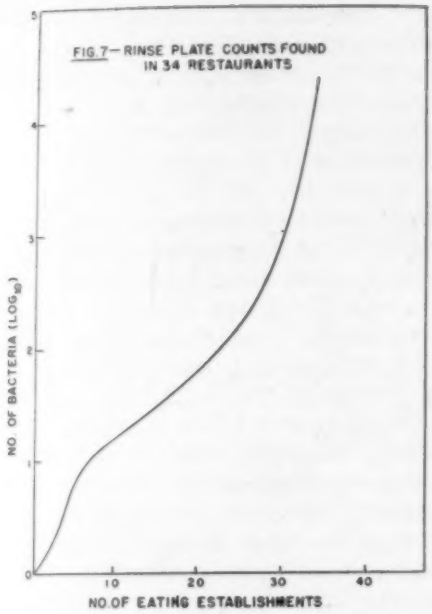
BACTERIAL POPULATIONS OF WASHED DISHES

The swab counts of the washed plates were obtained primarily to show relation to wash water counts. The data are presented in Figure 6. Thirteen out of 40 machines yielded washed plate counts under 100 bacteria per unit. It is also interesting to note that when wash counts of 6,000 or less were encountered the bacterial counts of the washed plates were less than 100. As would be anticipated, the counts of the washed plates increased roughly in proportion to the wash water count.

BACTERIAL POPULATIONS OF RINSED PLATES

The swab counts of the rinsed plates were obtained to determine the value of a swab count as a measurement of the sanitary rating of the dish. The data are presented in Figure 7. On the basis of 100 or less bacteria per plate 25 machines out of 40 machines rated, would show satisfactory results. Inasmuch as only 4 machines had rinse water temperatures of 170° F. or higher, the swab count is primarily a measurement of mechanical removal of the bacteria by the wash and rinse water. When the wash water counts were under 8,000





bacteria per ml. the rinse plate counts were under 100 bacteria per utensil unit.

DETERGENT CONCENTRATIONS

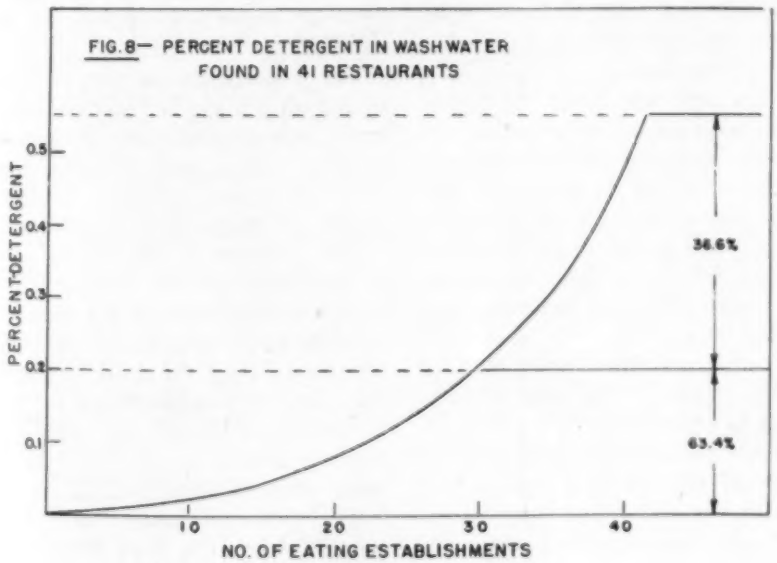
The detergent concentration was calculated by alkalinity. The alkalinity of each detergent used was determined and the per cent concentration was calculated.

Forty-one machines were examined. The results are presented in Figure 8. Five machines were operating at the time of examination without any detergent. Twenty-one machines contained from 0.01 to 0.2 per cent. Nine machines had concentrations greater than 0.3 per cent. Only 6 machines were operating with the proper concentration of 0.2 to 0.3 per cent. The second survey gave a similar picture except that the concentrations were, without exception, different from that obtained on the first survey. Nine machines had drip feeders for the detergent. Three of these machines had concentrations between 0.2 and 0.32 per cent. Two machines showed zero concentrations.

The results indicate that actually most of the dishes in all the machines were being washed in the absence of a detergent. Not a single machine had an acceptable method of feeding detergent that would keep the concentration constant throughout the washing period.

HOT WATER SUPPLY

Four establishments had automatic gas heater boosters for maintaining constant temperature for rinse water.



Two of these places had the heaters turned down so that rinse temperatures were below 170° F. Sixteen places have steam heated storage tanks but no steam boosters on the rinse lines so that they had an inadequate supply and rinse temperatures were low. The remaining places depended upon gas heated storage tanks which yielded an inadequate supply of hot water. Only 8 establishments had a hot water supply which could furnish 170° F. rinse water throughout the washing period.

CONDITION OF THE MACHINES

Twelve machines were at least 10 years old. Five machines were 20 years old. Fourteen machines were not more than 1 year old. Seventeen were in bad repair. Thirteen machines were supplied with ½ in. hot water lines which furnished an inadequate amount of water.

The survey showed that in the city there were no single tank machines that were doing a satisfactory job as measured by the tests and standards which were tentatively adopted. The survey showed definitely that the swab test alone does not measure the sanitary condition of machine washed dishes. It also showed that inspections of dishwashing machines should be made when they are in operation.

Each operator was given the results of the tests made on his machine and requested to make the necessary changes so that he could do an acceptable job. Due to the difficulties of obtaining equipment, results have been delayed but in the 8 months since the survey started, the following improvements have been made:

Eight new machines have replaced the older machines, making 22 new machines in operation.

Of the 21 old machines still in operation, the 17 that needed repairs have been fully repaired. Five gas booster heaters have been installed and more have been ordered. Seven establishments with ½ in. pipe rinse lines have changed to ¾ in. pipe to increase the flow pressure on the rinse lines.

No attempt has been made to devise a method of feeding detergents except to suggest the addition of an appropriate amount of detergent, with each tray of dishes in keeping with the volume of rinse water used. It is not practical to calculate dosage by measuring rinse volume because of the time involved in making such determinations by the sanitarian. The answer to detergent control lies in automatic dispensing machines that regulate the dosage by continuously checking the concentration of the detergent in the wash water and dosing accordingly. Such equipment is now available. We propose installing some of these machines for trial testing prior to recommending their use throughout the surveyed area.

The survey of the area has demonstrated to the writers that machine dishwashing has been done in a manner that is not in keeping with good public health practice. The conditions found in this area are likely perhaps representative of most cities, and show the need of better supervision by health authorities.

The response on the part of the local restaurant owners in making improvements has demonstrated that they are anxious to do a good job once they are informed of the deficiency of the machines and methods of operation.

The program as tentatively planned at the start of the study, has been highly satisfactory and practical. Two or three machines can be checked for operation during the noon lunch period. Pressure determinations and a checking of the operation of the machine for mechanical defects can be made at off-hours when the machines are not in use.

The fact that many machines were supplied by ½ in. rinse lines and that

flow pressures and temperatures were too low for good operation indicates the need of better supervision of installations and, perhaps, specifying minimum flow pressures and minimum provisions for hot water supplies in the restaurant code.

The demonstrations presented show that good operation can be obtained with the machines now in use after they are properly installed and properly equipped.

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When to Use Streptomycin

The Council on Pharmacy and Chemistry of the American Medical Association recently published a table showing the present situation as to diseases for which streptomycin might be indicated. In presenting the list, it warns of the difficulty of classifying the "nuances of experience with a drug of recent development." The list and other information about toxicity, dosage, administration, etc., will be found in the *Journal of the American Medical Association* for November 29, 1947.

The table follows:

STREPTOMYCIN

EFFECTIVE IN

Many *gram-negative bacillary infections:*
- Tularemia
- Hemophilus influenzae meningitis and pneumonia;
- Urinary tract infections, wound infections and bacteremias due to:
  - Escherichia coli
  - Bacillus proteus;
  - Pseudomonas aeruginosa;
  - Aerobacter aerogenes
- Plague;
- Meningitis due to all gram-negative bacilli;
- Infections due to Klebsiella pneumoniae;
- Shigella dysentery.

OCCASIONALLY EFFECTIVE IN

Certain infections due to gram-positive organisms and streptomycin-sensitive strains of organisms when they do not respond to penicillin:

(It is to be emphasized that penicillin is the drug of choice in the treatment of these infections, except diphtheria, and only rarely is streptomycin of clinical value.)

- Bacteremia and septicemia due to hemolytic streptococci
- Endocarditis due to green-producing streptococci (viridans)
- Staphylococcus aureus infections
- Staphylococcus albus infections
- Anthrax
- Diphtheria (but ineffective against toxin, therefore antitoxin should always be the primary treatment)

PARTIALLY EFFECIVE, BUT EXTENT OF USEFULNESS STILL UNDETERMINED IN

- Pertussis
- Tuberculosis
- Leprosy
- Gonorrhea

GENERALLY NOT TO BE USED AT PRESENT IN

- Typhoid fever
- Paratyphoid fever
- Amebic dysentery
- Undulant fever
- Toxoplasmosis
- Histoplasmosis
- Acute rheumatic fever
- Disseminated lupus erythematosus
- Localized lupus erythematosus
- Infectious mononucleosis
- Pemphigus
- Acute and chronic leukemia
- Ulcerative colitis
- Coccidioidomycosis
- Malaria
- Poliomyelitis and all other viral infections
- Blastomycosis
- Moniliasis
- Syphilis

Test for Detergents*

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HEALTH officials are interested in the development of a simple laboratory performance test for determining the efficiency of dishwashing detergents. Standard specifications relating to the composition of detergents, pH, alkalinity, buffering action, surface tension, and precipitation in hard water have been advocated for rating the effectiveness of detergents. Such properties, however, are difficult to correlate and have not given the final answer as to what a cleaning compound will do under field conditions, particularly in waters of varying composition.

Schwartz and Gilmore[1] in 1934 studied the performance of detergents on glass dishes soiled with material similar to that normally encountered in restaurant dishwashing. They employed a mechanical dishwasher and made light transmission readings using a Zeiss photometer. Scales and Kemp,[2] Jensen,[3] Fouts and Freeman,[4] and Harding and Trebler[5] have described the performance tests for studying the effectiveness of dairy detergents in the laboratory.

Gilcreas and O'Brien[6] developed a functional test for evaluating detergent efficiency in which they employed microscope slides, a standard soil, a slusher-type washer, and a photoelectric colorimeter to measure light transmission. Hucker and Walter,[7] Hucker,[8] and Mallmann,[9] reported on modifications of this type of test.

Hughes and Bernstein[10] studied the composition, properties, and effectiveness of 36 detergents. In determining effectiveness, these workers employed 5″ x 5″ glass plates, a fatty-soil, a commercial two-tank dishwashing machine, and an instrument for determining the density of films by measuring the proportion of incident light scattered.

Mann and Ruchhoft[11] developed a washing-performance test for studying detergents to be used in the cleaning of dishes and utensils in restaurant and dairy sanitation. These workers proposed a standardized technique for soiling, baking, washing, rinsing, drying, and examining microscope slides employing a special washing machine and photometer. They found their test to be a practical and reliable method of grading dishwashing detergents upon a performance basis.

The purpose of the present study was to determine whether the results reported by Mann and Ruchhoft[11] could be readily duplicated in another laboratory working with unknown detergents and using waters of various hardnesses and composition.

THE METHOD USED

The reader is referred to the paper of Mann and Ruchhoft[11] for the details of their method, since only modifications in their procedure will be discussed here in any detail.

The washing machine described by them was built to their specifications

* Presented at a Joint Session of the Laboratory and Engineering Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 7, 1947.

and used in all of the tests performed.

The photometer built by these workers was modified by eliminating the motor, generator, and battery, thus making a self-contained photometer that used the regular 110–115 v. current passed through a constant voltage transformer. Resistances were placed in parallel in the galvanometer circuit which made the output of the photocell more nearly linear and allowed finer adjustments. Light transmission measurements were also made using a Lumetron photoelectric colorimeter in an effort to find a suitable commercially manufactured apparatus. The Lumetron instrument was modified by placing frosted glass plates on both sides of an especially constructed adapter which held the six test slides.

Good quality microscope slides were washed with castile soap and, after rinsing, were boiled in sodium dichromate solution for 5 minutes. After cooling they were rinsed in tap water, boiled in distilled water, removed with forceps and dipped into fresh boiling distilled water, then dried with a clean towel and stored in large microscope slide boxes.

The nature of the soil and its application to the slides were found to be critical factors in this test. Experience showed that 105 g. of Hucker's[8] standard soil added to 300 ml. of distilled water gave the most satisfactory film on soiled slides. This soil mixture was warmed to 35° C., thoroughly mixed with a small electric beater, and then strained through four thicknesses of cheesecloth into Coplin staining jars placed in a water bath maintained at 35° C. The viscosity of this soil was determined using an Ostwald viscosimeter and, if necessary, adjustments in the concentration of the soil were made to bring the soil to a standardized viscosity.

Sets of six clean slides were read in the photometer and then placed in Coplin racks. Since we could not obtain satisfactory results by applying the soil to the slides using the rubber roller as originally described, the racks containing nine slides were dipped momentarily into the jars containing the soil, drained at an angle of 45° for 5 minutes, then turned and drained for another 5 minutes. This prevented undue concentration of soil on one edge of the slides. The slides were then placed for one hour in a designated section of an oven held at 95–97° C. The thermostatically controlled temperature was kept uniform in the baking area by means of a low-speed fan. Upon removal, the racks were placed in large desiccators containing calcium chloride, and stored overnight in order to obtain constant readings when placed in the photometer, since drying of the soil appeared to be a critical operation of the test. Each set of six slides was kept in a definite position throughout the test in order to minimize variations in readings.

The procedure of washing, using a 0.3 per cent concentration of the detergent in 1,500 ml. of water at 60° C., and of rinsing in the same quantity of water as near the boiling point as possible was the same as described by Mann and Ruchhoft.[10]

After drying, the light transmission of the washed slides was determined and the percentage of soil removal calculated. Lambert's law states that light transmission is a logarithmic function of density. As the light transmission of the density of the film on the slides as determined by the photometer follows Lambert's law, the formula for the calculation of efficiency of soil removal was modified by the original authors to conform to this law, as follows:

$$R = 100 \times \frac{\log Iw - \log Is}{\log Ic - \log Is}$$

R = per cent soil removed
Iw = washed slide reading
Is = soiled slide reading
Ic = clean slide reading

The data presented for the Lumetron instrument were calculated differently from those of the photometer results. The galvanometer readings from the Lumetron were taken from the optical density scale. Since this is a logarithmic scale the optical density readings are directly proportional to the soil thickness, and likewise are inversely proportional to the log of a transmission reading taken from a linear scale. This relationship permits the establishment of the following formula, still complying with Lambert's law:

$$R = 100 \times \frac{OD_s - OD_w}{OD_s - OD_c}$$

R = per cent soil removed
OD_s = optical density of soiled slides
OD_w = optical density of washed slides
OD_c = optical density of clean slides

Three different runs were made in eight different types of water using no detergent, castile soap, trisodium phosphate, sodium carbonate, and ten unknown detergents furnished by W. D Tiedeman of the New York State Department of Health. The different types of water employed were (1) distilled water; (2) zeolite-softened water of about 0 hardness; (3) Bozeman city water of moderate hardness (100 p.p.m.); (4) a natural hard water (300 p.p.m.); and zeolite-softened water adjusted with 60 per cent calcium measured as calcium carbonate and 40 per cent magnesium measured similarly to give hardnesses of approximately (5) 75, (6) 125, (7) 270, and (8) 600 p.p.m.

The three tests on each detergent using a particular water were not made in succession, but an entire run using all of the detergents was completed before the first detergent was tested again. In this way we were able to test this method more critically since it was found that there was not as great a variation from the average photometer readings when the three runs were made successively.

RESULTS

The calculated data obtained by washing soiled slides with no detergent and with each of the 13 detergents utilizing eight different types of water are too voluminous to present here. However, as a sample of the variance in photometer and Lumetron readings between runs, Table 1 is given, showing the results with a moderately hard natural water of approximately 100 p.p.m.

The average per cent of soil removed by the different detergents in waters of various hardnesses is summarized in Table 2. In most cases all of our data show that similar readings can be obtained by either a laboratory constructed photometer or a commercially designed apparatus such as the modified Lumetron photoelectric colorimeter used in this work.

At the completion of the experimental work Mr. Tiedeman furnished a key to the ten unknown detergents that had been employed in our studies. Detergent No. 1 (borax) was found to be slightly more effective than plain water in some tests while in others it gave poorer results. However, as shown in Table 2, it would be classed as a poor detergent in any of the waters used.

Detergent No. 3 (sodium carbonate) gave results similar to the known sodium carbonate (C.P.) used as one of the standards. These compounds are more effective cleaners than waters with no detergent or with detergent No. 1, but the data indicate that in water artificially hardened with calcium and magnesium they are no better. In fact, sodium carbonate may even show poorer results in very hard water (600 p.p.m.) due to greater redeposition on the slides indicated by the negative readings represented in Table 2. Hence, detergent No. 3 and sodium carbonate would be rated as poor detergents.

Detergent No. 7 (trisodium phosphate) and detergent No. 5 (a proprietary product believed to be trisodium

phosphate) demonstrated detergent properties parallel to that of the standard trisodium phosphate (C.P.) These compounds gave good results in waters of about 300 p.p.m. but only fair results in most of the other waters.

Detergents Nos. 8 and 10 were the same commercial detergents. All of the data presented show a close relationship between the results obtained with these two cleaners, as well as good soil removal except with very hard water (600 p.p.m.).

Detergent No. 6, a proprietary com-

TABLE 1

Photometer and Lumetron Determinations of Per cent of Soil Removed by Different Detergents Using Natural Water of Approximately 100 Parts per million Hardness

	Photometer				*Lumetron*			
	Runs				*Runs*			
Detergent	*I*	*II*	*III*	*Aver.*	*I*	*II*	*III*	*Aver.*
None	13.5	17.5	6.3	12.4	13.2	16.6	7.4	12.4
Castile Soap	97.4	97.4	97.6	97.5	97.9	100.0	97.4	98.4
Trisod. Phos.	77.7	76.4	68.5	74.2	77.3	68.6	62.0	69.3
Sod. Carb.	51.0	28.9	40.8	40.2	31.3	15.0	35.4	27.2
Unknown No. 1	16.9	15.5	16.8	16.4	22.1	9.3	18.5	16.6
" " 2	91.3	94.4	88.3	91.3	92.4	96.6	90.7	93.2
" " 3	44.1	54.6	60.5	53.1	33.8	55.2	58.6	49.2
" " 4	79.7	87.4	91.4	86.2	73.9	81.7	90.7	82.1
" " 5	68.7	80.6	87.0	78.8	58.5	83.1	86.6	76.1
" " 6	95.8	98.1	97.4	97.1	94.2	100.0	100.0	98.1
" " 7	68.5	73.2	79.9	73.9	57.5	61.4	79.6	66.2
" " 8	96.4	87.2	81.0	88.2	97.3	84.5	70.8	84.2
" " 9	86.7	91.3	90.9	89.6	75.2	91.8	93.8	86.9
" " 10	73.6	84.8	83.7	80.7	61.3	81.9	76.6	73.3

FIGURE 1—Experimental Dishwashing Machine Designed after U.S.P.H.S. Model

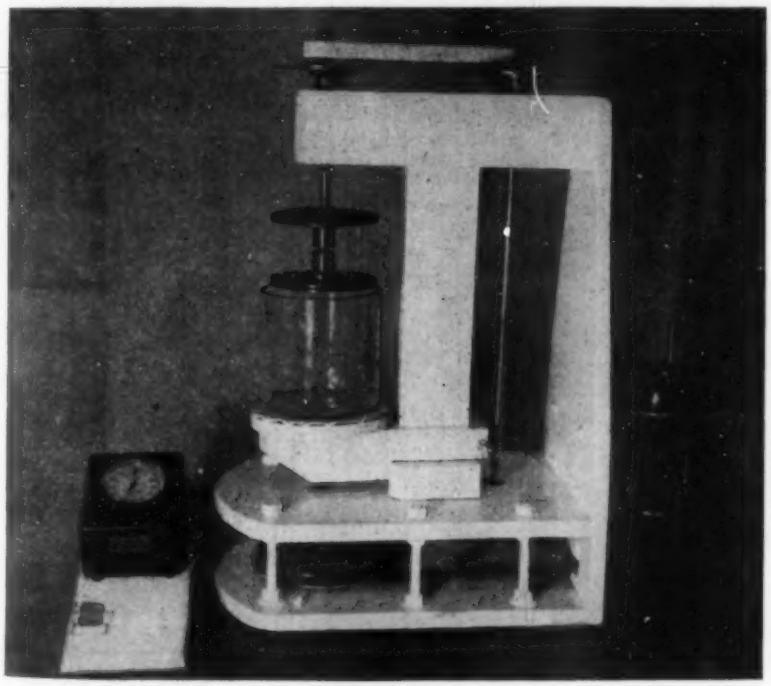
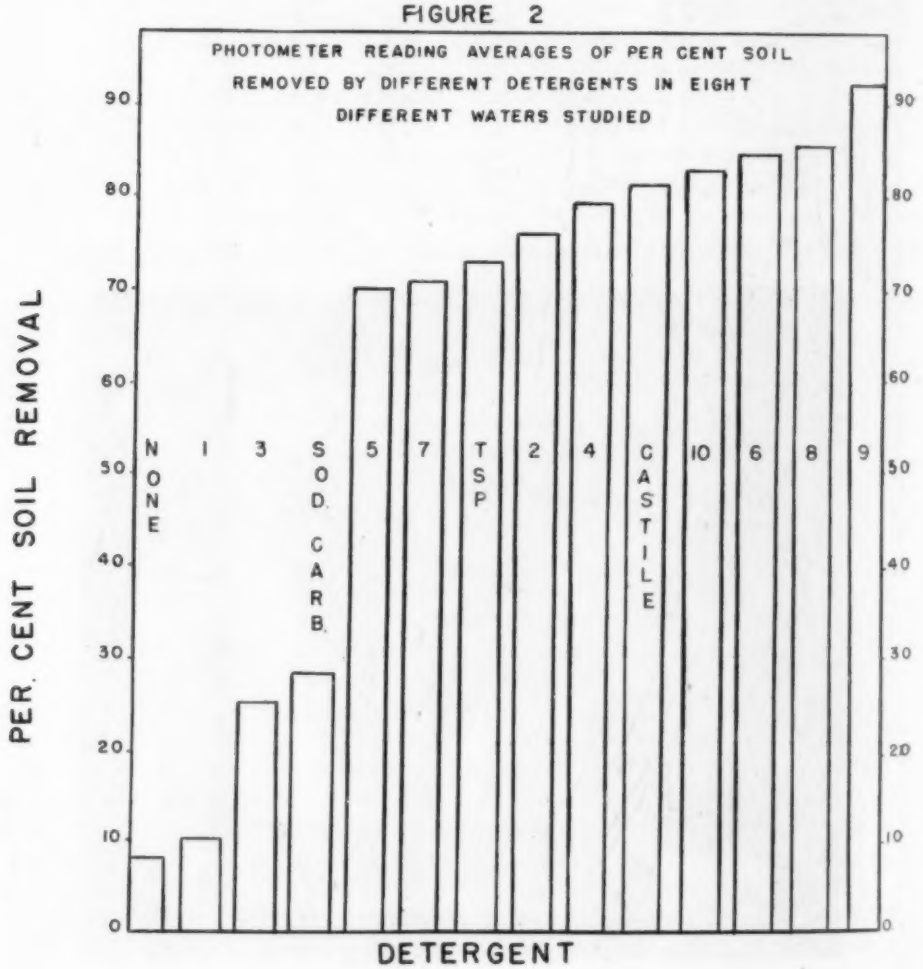


TABLE 2

Photometer Determination of Average Per cent of Soil Removed in Three Runs by Different Detergents in Waters of Various Hardnesses

Detergent	Distilled (0 p.p.m.)	Natural Zeolite-Softened (0. p.p.m.)	Natural (100 p.p.m.)	Natural (300 p.p.m.)	Zeolite-Softened Water Hardened with 60% Ca. and 40% Mg. 75 p.p.m.	125 p.p.m.	270 p.p.m.	600 p.p.m.	Average for all Waters
No Detergent	−5.4	44.3	12.4	8.5	−2.5	3.9	8.3	−3.5	8.3
Castile Soap	98.0	97.7	97.5	94.5	94.8	90.7	82.3	−10.1	80.7
T. S. P.	47.8	70.6	74.2	90.4	56.8	83.7	89.8	41.8	72.6
Sod. Carb.	61.8	66.0	40.2	49.4	3.9	23.4	15.7	−62.2	24.8
Unknown No. 1	10.6	41.6	16.4	16.7	−37.3	12.4	17.6	5.6	10.5
" " 2	69.2	72.6	91.3	86.1	70.8	85.8	80.1	50.8	75.8
" " 3	46.1	61.5	53.1	60.2	9.0	15.2	27.7	−48.3	28.1
" " 4	72.4	73.5	86.2	89.0	77.8	86.5	86.2	58.2	78.7
" " 5	50.8	71.5	78.8	92.7	67.4	68.4	88.2	40.6	69.8
" " 6	92.5	97.2	97.1	95.8	83.1	98.3	93.2	17.1	84.3
" " 7	52.6	71.3	73.9	89.9	73.5	84.6	89.8	30.8	70.8
" " 8	78.9	85.3	88.2	95.2	92.2	94.5	94.9	54.5	85.5
" " 9	95.1	95.1	89.6	95.6	90.9	97.2	94.5	75.8	91.7
" " 10	71.6	82.5	80.7	96.1	89.9	91.2	94.1	59.6	83.2

FIGURE 2



pound, showed considerable foaming in the softer waters as did castile soap. Both of these compounds were exceedingly ineffective in very hard water (600 p.p.m.), but otherwise showed good ability to remove the test soil.

Detergents Nos. 2, 4, and 9 were well known commercial products that are used extensively for dishwashing in waters of various hardnesses. The data show excellent soil removal for Detergent No. 9 and fair to good removal for Nos. 2 and 4 except with very hard water.

These data indicate that the modified technique gave satisfactory checks on similar products tested as unknowns and that it shows considerable promise in rating detergents as good, fair, or poor, depending on the important factor of the composition of the water used.

SUMMARY

The performance test for rating dishwashing detergents proposed by Mann and Ruchhoft [11] has been modified as described.

Three or more different runs have been made using no detergent, Castile soap, trisodium phosphate, and sodium carbonate as standards and ten detergents furnished as unknowns. These trials were run in waters of eight different hardnesses, viz; distilled water zeolite-softened water, Bozeman city water of moderate hardness (100 p.p.m.), natural hard water (300 p.p.m.), and zeolite-softened water hardened by adding 60 parts of calcium and 40 parts of magnesium measured as calcium carbonate to give final hardnesses of approximately 75, 125, 270, and 600 p.p.m. expressed as calcium carbonate.

Light transmittancy on clean, soiled, and washed slides was measured by a laboratory constructed photometer and also by a commercially built Lumetron photoelectric colorimeter modified for this work. Results obtained indicated that either apparatus gave satisfactory results although personal considerations favored the photometer because it read a greater portion of the slide area, required less adjustment between consecutive readings, and was not as inclined to overheat as the Lumetron.

The data presented on the per cent of soil removed, calculated by the use of Lambert's law as described, indicate that the hardness of the water used greatly influences the activity of certain detergents. Unknown detergents Nos. 3 and 5, and 7 showed very close correlation in cleaning ability to sodium carbonate and trisodium phosphate respectively. Likewise, duplicate unknowns Nos. 8 and 10 gave similar results. Detergents Nos. 2, 4, 6, 8, 9, and 10 would be rated as good for use with most waters by this technique, and field dishwashing practices indicate that all of these compounds give favorable results in water of hardnesses most commonly encountered.

These findings would tend to confirm the statement of Mann and Ruchhoft [11] that this method is a practical and reliable method of grading dishwashing detergents upon a performance basis. However, the variations obtained among the replicate trials for certain detergents would indicate the necessity of averaging the results of several runs in order to rate a detergent properly. Since the greatest variations generally occurred with the poorer detergents these inconsistencies might be utilized as a factor in disqualifying a detergent for use in water with which it gives such results.

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First International Poliomyelitis Conference

Plans are now being made for the first international conference on poliomyelitis. Under the sponsorship of the National Foundation for Infantile Paralysis, it will be held at the Waldorf-Astoria in New York, July 12–17. It will be the first time in medical history that information about poliomyelitis has been exchanged among the nations of the world. Official delegates from more than 60 nations have been invited. Thomas Parran, Surgeon General of the U. S. Public Health Service, will preside.

A scientific exhibit will be a part of the conference as well as a film program and demonstrations of muscle testing and treatment procedures. The program for the conference is being arranged by a medical advisory board of seven among whom are Kenneth Maxcy, M.D., of Johns Hopkins University, and Thomas Rivers, M.D., Director of the Hospital of the Rockefeller Institute for Medical Research. Coördinating the scientific exhibit section will be Thomas G. Hull, M.D., and Charles F. Branch, M.D., Directors of Scientific Exhibits respectively of the American Medical Association and the American College of Surgeons.

Conference headquarters have been opened in the Waldorf-Astoria, New York City, with Stanley E. Henwood as Executive Secretary.

Some Recent Trends in Vital Statistics Registration Practices*

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ONE of the administrative functions of a state executive officer of vital statistics is to insure, in so far as he is able, the enactment of vital statistics legislation which will provide sufficient scope for the operation of an effective program. Conversely, it often becomes necessary for him to take a stand against legislation which, if passed, would introduce procedures or permit practices detrimental to the efficient system which he has set as a goal.

Accordingly, an analysis of recent proposed vital statistics legislation provides us with a clew as to what many of our state registrars are thinking in terms of program. The compilation of a Model Vital Statistics Act in 1906, and of a Uniform Vital Statistics Act in 1942 was followed by a flurry of state legislative activity, but in most states this was centered around the introduction of a new type program. That this suggested legislation was not flexible enough to keep pace with the expansion and improvement of such a program is emphasized by the fact that each year sees, somewhere in the nation, the introduction of at least one bill, more often of many such, to permit an improvement in the system. This paper, then, has as its frame of reference the vital statistics legislation introduced in or enacted by the respective state legislatures over the period of the last two years. From tabulations of vital statistics registration items recurring in such legislation, it is possible to deduce certain trends of thought that seem to fit into a nation-wide pattern. Such tabulations reveal that nine items might be grouped as leading causes of concern in the field of vital statistics registration. It will be worth while to consider each of these subject matter items in some detail.

1. The Problem of Recording Illegitimacy

Current legislation indicates three distinct trends in the registration of the fact of illegitimacy. The first of these is that many states have decided to make mandatory provision for the attendant at birth to file the birth certificate of an illegitimate child directly with the State Office of Vital Statistics rather than have it pass through the hands of the local registrar. There is a feeling, however, that such a procedure tends to weaken the local registration system, and that its disadvantages seem greatly to outweigh the theoretical advantages. Secondly, many states have added to their legislation a provision that the certificate of an illegitimate child must not differ from the certificate of a legitimate child—once the child in question has been adopted or legitimated. This implies, of course, the preparation

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-fifth Annual Meeting in Atlantic City, N. J., October 6, 1947.

of a new certificate. The third trend is considerably more alarming from the standpoint of complete natality statistics. Recent legislation indicates that some states have adopted what they consider to be the easy solution to the problem, and deleted the item of legitimacy from the certificate. Evidence exists that in some states welfare agencies advocate such a step. In these cases, the question " How can you tackle the problem of illegitimacy in your state if you do not know the extent of the problem?" is left unanswered. A compromise solution has been adopted in many states by removing the item from the face of the certificate and placing it on the supplementary portion, but in some cases this does not conform to the letter of the law. Those states which seem best to have met the problem include the item on the certificate, but eliminate it on certified copies of the certificate usually by the general use of a short form certification.

2. The Problem of Recording Adoptions

Most significant in this connection is the expansion of laws and procedures which permit the registrar in the state where a child was born to recognize adoptions decreed in other states. As of July of this year, all state registrars are able to issue certified copies of birth records which show the new legal status of any child born within the state. In documenting such adoptions the registrars of 30 states need no longer engage in lengthy correspondence with lawyers, clerks of court and adopting parents located in other states. These registrars can now accept the court report form designed by the registration officials in the state where the child was adopted. In addition, 35 of the states now have legislation requiring the clerk of the court to report adoptions routinely to the registrars. The National Office of Vital Statistics, in coöperation with the Committee of the Council on Vital Records, is presently preparing a report which analyzes in detail the adoption practices, and registration implications arising therefrom, for each of the 48 states.

Another legislative trend in regard to adoptions is indicative of the fact that registration officials are coöperating with welfare agencies in an attempt to prevent disclosure of the fact of adoption. Many states have recently enacted laws specifying that a new certificate of birth be prepared following an adoption, and that such a certificate shall not differ from the standard certificate which is routinely filed. Further, such legislation usually specifies that the original certificate shall be filed under seal, to be revealed only to the registrant if of age, his parent or guardian, or upon court order.

More disturbing is legislation which tends to allow practices confusing the place of adoption with the place of birth. Some states are still enacting legislation requiring a state office of vital statistics to file a new certificate of birth following adoptions for children who were not born within the state. Ramifications of such a practice if it is extended to cover births occurring outside the continental limits of the United States can be readily visualized. Much of the difficulty encountered in connection with adoptions seems to center around the question of whether or not the child should be told he is adopted. The tendency on the part of welfare agencies now seems to be " Yes, tell the child." If adopting parents could be so persuaded, much of the difficulty from the registrar's standpoint would be eliminated. One safeguard should be general, however, and that is that even though the registrant knows he is adopted, he should not have to advertise that fact on the certified copy of his birth registration.

3. The Registration of Births and

Deaths Where Place of Occurrence is Outside the State of Residence

This type of legislation, usually opposed by registrars, but sometimes enacted in spite of this opposition, is also disturbing in its implications. Three states in the past year have introduced legislation requiring that the state vital statistics office include in its files birth and death certificates for these events occurring to residents wherever they may be outside the state boundaries. This, in effect, provides for a dual registration system which cannot help but be confusing. The reasons underlying such legislation are genealogical in significance—and it would be more technically accurate to provide for the establishment of genealogical files separate and distinct from the files of vital statistics.

Somewhat allied to the same problem, though distinct from any genealogical implications, are laws enacted by the several states requiring that deaths of military personnel overseas be included in state death registrations, and certified at the state level. In essence, the situation resolves itself into this problem, that despite the fact that state vital statistics legislation sets forth the principle that a state shall be responsible for the registration of births and deaths occurring within its boundaries, pressures are now being brought to bear to expand this scope of registration, regardless of the fact that such expansion tends to weaken the registration system generally. State registrars will do well to stick to the standard of occurrence registration, on a broad state basis, until such time as it can be shown that such a system might result in the non-registration of even one vital occurrence.

4. Revision of Vital Statistics Laws

High on the list of items requiring registrar attention, as indicated by the legislative activity of the respective states, is the matter of the Vital Statistics Act itself. At least 9 states in the past 2 years have attempted a complete overhauling of their legislation in vital statistics. Four of the states have had passed a completely new Vital Statistics Act. The indication is that vital statistics are not static, that the laws of 1917 or of 1939 might meet the requirements of their times but cannot foresee the growth through which their subject matter moves. There is ample evidence that the so-called Uniform Vital Statistics Act has outgrown its legislative usefulness, and is in need of thorough revision. The legislative committee of the American Association of Registration Executives and the National Office of Vital Statistics should heed this evidence, and jointly prepare a new uniform act which will take care of many of the present omissions.

The present Uniform Vital Statistics Act is deficient in its provisions for the signing of a death certificate when no physician was in attendance. Its recommendations in respect to the registration of foundlings are not clear cut. It gives no evidence of a study of the relationship between morbidity and vital statistics. It lags behind the times in its references to the issuance of certified copies. State registrars are aware of these and other weaknesses in their legislative structure, and put this topic high on the list of registration problems requiring attention.

5. Centralization of Marriage and Divorce Records

This topic appears on the list of items receiving legislative attention by a majority of states, not so much because of its problem significance, but rather as an indication of a new trend. It seems incredible that in a country so fully aware of the value of statistics of all kinds, no mechanism has been developed over the years that will give us a straightforward, accurate total figure, for the nation, of the number of mar-

riages performed or divorces decreed. The National Office of Vital Statistics is presently encouraging a program for the centralization of marriage and divorce data within each state, but the program from the national standpoint lags far behind the statistical programs associated with natality and mortality. That this topic appears in the list of subjects receiving most legislative attention is an indication that state registrars are lending their support to the principle of centralized collection of marriage and divorce statistics.

6. The Correction of an Original Record

Recent legislation indicates that states are still wrestling with the problem of how to correct an original registration, yet still maintain its legal integrity. On this topic, however, a lack of similarity in the legislation seems to indicate that the ideal solution has not yet been found. The problem itself is twofold in significance. First, what authority should be required to make the correction, and second, how should the corrections be made. A further question arises in connection with the information called for by the certificate items—what constitutes an item of major significance, and should the correction procedure for these items differ from that applied to the items of so-called minor importance. A review of current legislation indicates that registrars have these problems under consideration. And from that legislation it is possible to create a composite procedure, which no state has adopted in its entirety, yet which seems to be suggested as a possible solution to the problems.

Most states are agreed that, for a varying period up to one year, a signed statement by the person who executed and signed the original is sufficient authority for a change of the original certificate. In some such cases, a new certificate, properly filled out, is attached to the certificate which is in error, and becomes the official entry. Most states are now in agreement that items on an original registration should not be erased once the certificate is filed. Many states disagree with the procedure of crossing out wrong information and writing in a corrected entry. Some states feel that after a certificate has been on file for one year, a change of one of the major items, name, sex, date of birth, place of birth, or color, should require a court to review the evidence presented in support of the change. Emerging from the current legislation is a new correction concept, which distinguishes between a certificate and a record. The certificate is the original registration, which sets forth certain facts allegedly true. Any alteration of these facts, or addition to them, becomes a part of the record, which, in effect, is a certificate brought up to date. Some states allow on the original certificate form a blank space, for amendments or corrections. The original information is not changed on the face of the certificate, but a notation is added, showing the change or correction made, the authority for the change, the date of the change and the signature of the registration official. Other states are considering the possibility of an amendment form, which may be filed with the certificate, and photographed with it if certified copies are produced by photocopy. In the case of legitimated or adopted children, of course, the procedure permits the preparation of a new certificate form. Such a plan contains the elements which best preserve the legal integrity of a corrected record.

7. The Signature to a Birth or Death Record

Practice has long designated that the person signing a birth record shall be a physician or midwife. Actually, however, instances arise when not all cases are covered by these two classifications.

In the case of births, experience shows that deliveries are effected by persons without accredited medical training, or even in some instances by the husband of the woman who is delivered. Similarly, the medical certification in cases of death cannot be limited to practising physicians only. Legislation reviewed indicates that many states are broadening the categories of persons authorized to sign certificates. Significant in this connection is the fact that when new certificates are prepared following adoptions or legitimations, the state registrar is empowered to sign a certificate as the officiating authority.

8. The Place of the Local Registrar in the Vital Statistics System

It has become a platitude to point out that the local registrar is the cornerstone of the data collection in the vital statistics system. Yet for too long the local registrar has been the forgotten man of vital statistics. If his status could be made more authoritative and secure, the present elaborate systems of querying could be entrusted to him entirely. Some states, realizing this, are raising the fees paid to local registrars for each certificate filed. Others are experimenting with the idea of appointing a full-time registrar to each county or city health unit, such a registrar to share the duties of both registration and statistical analysis at the local level. There is evidence, however, that all states have not grasped the importance of a strong system of local registration. As late as this year one state introduced into its legislature a bill recommending the abolition of local registration fees for the collection of vital statistics data. The bill was rejected, but as states are confronted with decreasing budgets we may look for such pressures to be repeated. Registration executives can no longer afford to take for granted the assumption that the foundation structure of their system is immune to decay.

9. Delayed Registration of Births

Since 1942 the system of delayed registration has undergone its baptism of fire and, in general, emerged unscathed. Yet recent legislation indicates that not yet has the nation emerged with a pattern of procedure which is comparable from state to state. Two questions in this connection are given varying interpretations. First, what should be the nature of the evidence demanded to support the application for registration? Second, should such evidence be reviewed by the registrar or by the courts? The manual on *Uniform Procedures for Delayed Registration*, prepared by the American Association of Registration Executives and the Division of Vital Statistics which was then a part of the Bureau of the Census, seems to provide the answers as to the nature of evidence. Experience suggests that court procedure to evaluate such evidence is an unwieldy step which subjects the applicant to unnecessary expense. Accordingly, most states now have the evidence reviewed by the state registrar, with recourse to the courts possible in case of a rejection. Such a system seems to be working satisfactorily, and suggests itself as an advisable national pattern.

These, then, are the 9 problems that head the list of legislative activity in vital statistics. I have purposely deviated from the usual pattern of outlining the 10 leading causes, because after these 9 the emphasis decreases on a nation-wide basis, and the legislation concerns itself with topics which are more or less isolated by states. Such topics, however, are signposts, and may become the leading problems of the approaching years. Included in this list are such topics as the need for a certificate of presumption of death; should certified copies be issued free of charge; should more information regarding veterans be added to the death certificate; and to what extent should

vital records be open to public inspection. Registration executives will find in such questions a clew to state procedures which more and more will require administrative attention.

In summary, this paper points out that a review of recent legislation in vital statistics indicates 9 registration topics which are causing registrars of vital statistics some concern. In rank order, these topics are

1. The problem of recording illegitimacy
2. The problem of recording adoptions
3. The registration of births and deaths where place of occurrence is outside the state of residence
4. Revision of vital statistics laws
5. Centralization of marriage and divorce records
6. The integrity of a corrected record
7. Who may sign a birth or death record as "attendant"
8. The place of the local registrar in the vital statistics system
9. The problem of delayed registration

Yet the fact that the program of vital statistics is not static is a healthy sign, because it indicates that it is a growing program, and that registration executives are keeping pace with the growth by providing a legislative structure which permits an approach to a solution of the problems as they arise.

Medical Expenditures of Farm Families

Two Bureaus of the U. S. Department of Agriculture, Human Nutrition and Home Economics, and Agricultural Economics, have been conducting a study of living expenditures of farm families in 25 states in the north central and southern regions. The final data will shed a good deal of light on how farm families were affected by the war.

Reports already released deal with four areas of farm family expenditures —those for medical care, personal care, repairs and improvements of farm dwellings, and purchase of home furnishings and equipment. In each case, information is available for the years 1941 and 1945. Average medical care expenditures for families rose from $51 to $82, a rise of 60 per cent in a period of a price rise of 14 per cent. Physicians' services and hospital care took a larger proportion of expenditures in 1945 than in 1941 whereas expenditures for eye tests and glasses, for dental care, and for drugs and medical supplies were a smaller proportion.

Expenditures for personal care (beauty parlor and barber shop services, toilet articles) almost doubled in the period as did the money expenditures for dwelling repairs.

The reports already released and future reports are available from the U. S. Department of Agriculture, Agricultural Research Administration, Washington 25, D. C.

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PROGRESS IN CANCER CONTROL

ABOUT one year ago, we reviewed in these columns,[1] a significant analysis of the program of the American Cancer Society and the progress made by various states of the Union in the application of that program. We are happy to present this month a special Review Article on the more recent advances made in this new field of public health by Austin V. Diebert of the Cancer Control Branch of the National Cancer Institute, of the National Institute of Health.

Dr. Diebert rightly points out the general rise in public morale with respect to the cancer problem. He reminds us that "The pessimistic attitude of a decade ago, no less prevalent among professional workers than among the laity, has given way to a widespread appreciation of the possibilities for cure by adequate treatment if cancer is discovered early, and of the power of research to win an ultimate victory over this disease."

The work of the U. S. Public Health Service in this field—as in other areas of public health—involves four major lines of activity, designed to promote, respectively, research, direct health services, preparation of professional personnel and education of the general public. In all of these phases of the program grants-in-aid to the states are included, as well as intramural work at the Institute itself. Actually, about three-fourths of the total appropriation of $14,000,000 for 1947-1948 will be granted to states and medical schools and less than one-quarter expended in Washington (mainly for the research program of the Institute).

Practically all states and territories are participating in these grants, along the lines described in detail by Dr. Diebert; and he analyzes in some detail three well developed state health department programs in operation in New York, Massachusetts and Connecticut. From the general standpoint of public health administration, it is of special interest to note the distinction between the three different types of local field service, advocated by the A.C.S., provided respectively by detection centers (for examination of normal persons), diagnostic centers (for those suspected of cancer), and treatment centers. This is a differentiation somewhat more precise than that in force in such fields as tuberculosis control and child health. Whether this is, in the long run, good administrative policy, only time will show. It has certain distinct psychological advantages at the present

stage of the program; and the detection center is clearly a proper function of the health department.

Of special interest too, to both the health officer and the public health laboratory worker is another article, presented in this issue of the *Journal* describing the cell-smear method of diagnosing cancer developed by Papanicolaou at Cornell Medical College. Papanicolaou quotes the statement that "should every woman over 30 or 40 years of age have periodic smear examinations at regular intervals, mortality from cancer of the uterus would be practically eliminated." This, as he says, is a remote idea; but the opportunities for the public health laboratory in this field are obviously challenging.

It is of some general interest to note the greatly increased rôle of the state health department in the newer phases of our modern public health program. In vital statistics, communicable disease control, sanitary engineering, laboratory service, maternal and child health, venereal disease control, tuberculosis control, and public health nursing, the state coördinates and supplements activities which are now to some considerable extent already in existence at the local level. In industrial hygiene, dental hygiene, mental hygiene, and the control of cancer and other chronic diseases, it has the responsibility of formulating new programs and stimulating activities with which many local health departments have not been concerned in the past.

REFERENCE

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WHAT SORT OF NATIONAL SCIENCE FOUNDATION DO WE NEED?

WITH respect to the desirability of a major program of federal aid for scientific research, there seems to be no serious dissent. The reports of The President's Scientific Research Board,[1] under the Chairmanship of John R. Steelman, estimates that 1,000 million dollars are now spent for research in the United States (with approximately 100 million in the field of medical sciences). They recommend that the total sum to be increased to one per cent of the national income (nearly 2,000 million); with 300 million allotted to the medical sciences. These recommendations have apparently met with almost universal approval.

The procedure by which the federal government should attack this essential task is, however, the subject of serious difference of opinion—a difference so fundamental as to lead to a veto by President Truman of the Smith Bill creating a National Science Foundation passed by the Congress last summer.

The controversy involves something much more than administrative detail. It implies a fundamental difference in philosophy; and this difference was sharply disclosed in the Magnuson Bill (of which the Smith Bill was an even more extreme form) and the Kilgore Bill—both introduced in the 79th Congress. The essential conflict has been admirably analyzed by a Study Group of the Washington Association of Scientists.[2] The Magnuson Bill (and even more the Smith Bill) "regards science as an auxiliary to the development of industry, medicine, and the national defense; it places complete confidence in the existing organizations and facilities for research and believes that these organizations should further the development of science with a minimum of control by the elected representatives of the people. It would thus simply expand scientific activity in the country by enlarging the

existing structure, concentrating support in well tested organizations and centers if results may be thus more effectively attained. It would place control of the Foundation in the hands of recognized leaders in science, industry, and national defense, insulating it from the people's representatives in the interests of security and immediate efficiency."[2] Under the original Smith Bill authority was vested in a board of 48 unsalaried part-time members who would select an executive committee of nine, who would in turn appoint the Executive Director.

On the other hand, the Kilgore Bill " was based on the premise that science is a national resource, that its raw material is the nation's scientific man power, and that, as a vital national resource, its furtherance should be entrusted to an authority directly responsible to the elected representatives of the people—the Congress and the President. The proponents of this philosophy place primary emphasis upon long-range planning for the whole field of science to insure the development of scientific potential on the widest possible basis throughout the country. They seek guarantees which will deny to special interests a disproportionate influence in formulation of Foundation policy or disproportionate benefits from its activities." The Kilgore school of thought "believes that science has grown to such stature, and is so important for the national well-being, that its management can be left neither to chance nor in the hands of a small group of private citizens serving part-time, no matter how well qualified or well intentioned they may be. Moreover, they feel that an activity which is fundamentally geared with the main drive-shafts of our economic and social life cannot be left free from the normal processes of democratic political control. Recognizing the need for protection of the freedoms of the individual investigator from irresponsible political meddling, they nevertheless would firmly integrate the National Science Foundation in the federal governmental structure. Thus, they would place the direction of the Foundation in a single individual, or at most a small full-time commission, appointed by the President and confirmed by the Senate, and fully responsible to these elected representatives of the people."[2] This is essentially the mechanism by which freedom and responsibility have been so successfully combined in the framework of the Tennessee Valley Authority.

The Magnuson program is attractive to us as scientists in the fact that it provides complete freedom from improper political control; although as citizens, we may be somewhat concerned at the appropriation of large sums of tax money to be spent by a board which has no effective responsibility whatever to our appropriating bodies. Furthermore, it is clear that under the Magnuson plan the 48 members of the Committee would be appointed from the leading representatives of the natural sciences as they are operating today; and that the program would mean great expansion of the types of research now under way in "the development of industry, medicine and the national defense." The fundamental problem to be faced is whether the present distribution of research effort is so completely adequate to meet the fundamental needs of the American people that it should be frozen into a permanent pattern; or, on the other hand, whether some fundamental change in emphasis may not be urgently desirable. This is a problem to be decided by broad scientific and social statesmanship and not by the natural enthusiasm of specialists.

The problem is a many-sided one. It involves, first of all, the areas of knowledge in which research activities should be specially stimulated. Conventional types of laboratory investigation—in chemistry and physics and physiology and clinical medicine—have yielded miraculous results. Exploration in this area of research must be continued and expanded, as will inevitably be the case, under any conceiv-

able program. To many thoughtful persons, however, there seems to be a dangerous lack of balance in the dizzy advancement of physical and physiological science and the static condition of psychological and social science. The perilous state of the world today seems primarily due to the fact that we have learned to make atomic bombs before gaining even an elementary knowledge of the science of international relations. Man has gained vast powers in the control of the physical universe—without corresponding progress in the control of his own emotional motivations.

J. F. Wharton [3] has recently pointed out that "In the quest for peace, we are now trying to build world organizations, economic utopias, and perfectionist educational systems, with very few basic principles to guide us. We are like medieval physicians trying to prevent typhus epidemics before anyone had laid down the principles of the germ theory and demonstrated the effect of an impure water supply. We *may*, by great good luck, hit on the correct solution, but, if we do, it will be better luck than the human race has ever had before." Is it not clear that what we desperately need is stimulation of the psychological and social sciences, the areas of research which lag so far behind those in the simpler and more conventional fields? We might, or might not, attain such a reorientation under the Kilgore Bill. Even our present imperfect knowledge of human nature makes it clear that we could not possibly attain it under the Smith Bill, which would put complete power in the hands of the votaries of the more well established fields.

A serious attack on the wilderness of ignorance in psychology and sociology would necessitate a fundamental change of attitude in regard to the types of research, as well as its general areas. The marvelous results of physical and medical science in the past have been achieved in the laboratory; and, to many, the very word "research" implies balances and test tubes and colonies of guinea pigs or monkeys. *Webster's Dictionary* gives us a broader concept. It defines "research" as "studious inquiry or examination; specifically and usually, critical and exhaustive investigation or experimentation having for its aim the discovery of new facts and their correct interpretation, the revision of accepted conclusions, theories, or laws, in the light of newly discovered facts, or the practical applications of such new or revised conclusions."

Under such a definition, there is room for much more than the conventional laboratory techniques of experimentation with the spectroscope and the inoculating needle. If we are to understand the principles of human behavior and the impacts of social machineries, we must have research outside the walls of the laboratory. We must supplement the results of the laboratory by rigid and scientific study of human reactions and the influences of the social environment, by statistical study, by field experiments and demonstrations. It is precisely this type of research which has been so poorly supported in the past. Millions are available for conventional laboratory research. It is extraordinarily difficult to obtain the most modest sums for the study of such pressing problems as public administration, the hygiene of housing, medical economics in which our own Association is interested—or in the examination of the motivations of men, the principles of government, the bases of sound international relations. A national research program which is to serve the real needs of the American people must rectify this serious inbalance.

The need for reorientation is displayed not only in the areas and types of research, but even in the tools of research. Funds are readily available for the perfection of laboratory methods in physics or chemistry. In the social sciences, however, statistical procedures are the essential and vital tools of research. The *American*

Statistician, published by the American Statistical Association,[4] points out that in the Smith Bill "statistics as an important method for all sciences—natural, physical, and social—was not included, nor was there any provision for inclusion of any of the social sciences." The social sciences "were actually excluded from the Kilgore Bill."

We need—and we shall have—more generous federal support for scientific research in the United States. But a program for this purpose must not be framed to perpetuate and increase the menacing gap between man's control of his physical environment and his control of his emotional reactions and the framework of the society in which he lives. It is rather to narrow this gap that planning of research grants should be designed—if the program is to serve truly the urgent needs of the modern world.

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"BY HIS TONGUE SHALL YE KNOW HIM"

A BRIEF communication received from a correspondent in Pennsylvania * struck so responsive a chord in the Editorial heart, that it is presented herewith to our readers. Miss Horne—evidently speaking from bitter experience—has this to say, with regard to our profession; all that follows in this editorial being in her words.

The public health worker learns early that he does not work. In other professions people work. But not in public health. There the "worker" *functions, he carries on projects, he promotes activities.* He does not work and he never talks. He would blush with shame if he were ever discovered just talking to people; *he discusses, he confers, he translates, he contacts, he interprets, to other personnel, to other agencies which function in health and social service areas, to the key people, and to the community as a whole.*

He discovers, too, that on beginning a new job his first duty is not to learn about the health of the people he will serve, but to *instigate a survey for the determination of the health needs of the local community. He does research studies and compiles statistics on the local health situation.* To gain support for his work he dare not choose a few good citizens from different social and economic groups, who are interested in the public health; *he seeks out the key people representative of all social and economic levels, who are public-health-minded, to assist him to put across his program.* To report the information he has gathered, to the groups of interested citizens, would be a betrayal of his profession; *he presents significant facts and figures to the responsible local leadership and interprets, correlates, and co-ordinates his findings.* He cannot mention the strong and weak points of the present health conditions; *he presents the total overall picture of the local public health set-up and he indicates what has been accomplished in each program phase and highlights the outstanding achievements.*

* Horne, Marcetta, 317 East Fairview Street, Bethlehem, Pa.

The public health worker would be covered with embarrassment if he were to explain that the purpose of a public health program is to improve living conditions, to control disease, and to give everybody an opportunity to develop good mental, emotional, and physical health. For him, *the ultimate goal of a public health program is to so stress desirable health attitudes that positive mental, emotional, and physical factors may be promoted until the optimum of health in these three areas is reached.* When he arrives at the point where he is ready to make plans for the improvement of the health work, *he defines his objectives, he formulates his policies, he translates the findings of his survey into sound and suitable channels of activity to accomplish his overall goal. He centers his major activities on helping to develop an adequate and efficient public health program to "maximize the direct and democratic participation of the community."*

When he is ready *to set about to interpret to the community the aims, purposes, and the scope of the public health program as a whole,* he never uses the local newspapers or radio station to publish his news; *he utilizes the available and appropriate community resources to give desirable publicity to his proposed program.* He does not ask the local men's and women's organizations to discuss the *proposed program* at their meetings; he *contacts the social clubs, the service clubs, and the civic and fraternal groups of the community to ask for their support in the project of their community education. He contacts his key people and entrusts to them some part of the responsibility for interpretation to the public.* He cannot bring himself to ask for suggestions to carry out his plans; *he stimulates interest and enthusiasm so that thought-provoking and challenging ideas will be brought forth.* His purpose is not to change people's ideas; *he desires to weed out undesirable attitudes and behaviorisms and to replace them by socially accepted ones.*

The use of jargon becomes a bad habit with public health workers. They come to depend upon it to confuse and mystify the public and to help create a favorable impression of their work. Many people who are unfamiliar with the great game of public health are perhaps inclined to listen with approval to a man who knows so much about his job that *he has instigated a survey for the determination of the community's health needs.* They are possibly more likely to respond to this same man's appeal to them to *back the health department's all-out campaign for the eradication of pediculosis among the school-age group* than to another worker's request for their help in cleaning up the heads of school children.

But perhaps the main reason that public health workers use jargon is that it makes them feel important. It impresses the public and it adds to their own feeling of well-being to hear the long and musical words rolling from their lips. After all, it takes a pretty smart fellow to be able just to make the sounds, to say nothing of *knowing what they mean and less of knowing how to translate them into appropriate and effective action.*

LETTERS TO THE EDITOR

To the Editor:

Your editorial, "The Victory Over Maternal Mortality," in the November issue of the Journal has caused some lively discussion among members of our seminar group in maternal and child health.

We too are greatly impressed by the decline in maternal mortality in this country and have discussed at some length the many factors which have contributed to this happy result. The importance of the New York Academy of Medicine study as a factor in effecting the reduction of maternal mortality cannot be questioned, but we are of the opinion that your editorial fails to take into account the advent of the sulfa drugs in the late 1930's which also improved the quality of medical care and at least two other important factors which should be mentioned in any attempted explanation of the marked decline which has taken place during the past ten years.

These are the passage of the Social Security Act in 1935 and the increase in hospitalization of maternity patients during the past ten years.

It is true that there have been no "fundamental changes in general public health policies or techniques," but surely there has been a tremendous increase in the *application* of these policies and techniques as a result of the public health grants to the states and local communities made possible by the Social Security Act.

Widespread education of the public, as well as of expectant women themselves, as to the need of early and constant medical supervision during pregnancy; educational programs for midwives who attended 55 per cent of non-white deliveries in 1936 and 38 per cent in 1945; and provision of refresher courses in obstetrics for rural physicians —these important public health activities which were given their first great impetus following the passage of the Shepherd-Towner Act in 1921 were so greatly increased during the period under discussion as to constitute a "sudden change" in our opinion.

In your editorial no mention is made of the fact that the number of births occurring in hospitals has more than doubled since 1935. There are a number of reasons for this increase in hospital deliveries, but we wonder if it is not possible that this increased use of hospital facilities has been substantially contributed to by the increase in hospital insurance plans.

Our purpose in commenting on this matter is in no way to detract from the importance of the studies conducted by the medical societies in New York and elsewhere but to point out what seems to us your oversimplification of the case. In maternity care as in all other problems affecting the health of the people, there are three essentials to progress—the medical skills and facilities must be available; the people must know the value of skilled care and be motivated to seek it; and they must have the ability to take advantage of it.

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Jan. 8, 1948 Berkeley

TO THE EDITOR:

The official administrator is becoming aware of the effect upon family life of having a number of social workers entering the home, and there is a growing danger of resentment of this too frequent intrusion on privacy. As it is, one should expect that only one of the several workers will really gain the confidence of the family. Who is that worker to be to whom the family can look for counsel and advice?

The public health nurse was followed by medical and psychiatric social workers, case workers, and now mental hygiene is recommending another field worker. It is probable that, had the educators of public health nurses placed less emphasis on nursing, it would have been possible to have extended the scope of the responsibility of the public health nurse to these other social fields. Analysis has shown that the actual nursing care undertaken by the health nurse averages only about 35 per cent of her time. In spite of this, in addition to the requirement of a nursing certificate, there is much reiteration of techniques and procedures already taught in the nursing school during her training for public health. Hours are wasted on demonstrations of "how to bathe a baby, how to clean a thermometer, how to give a bed bath," etc. These unimportant details rob the health nurse of the joy of using her initiative and of accomplishment from her own decisions of what to do and what not to do in a given situation.

The writer feels that the time is overdue for review of the problem implied above. A job analysis should be made of the health care needs of the family, not only physically but also mentally and socially, to determine the type of training to prepare a single professional worker to meet these needs. In fact, the term "public health nurse" no longer describes her functions, and confuses the public as to the scope even of her present activities. This combined individual might be designated the "health care worker" to be the "spearhead" of health care activities, as expressed by Dr. Parran. Schools of public health should be responsible at a professional level for establishing a department to train this worker. In the field she should be assisted by trained practical workers in much the same manner that the movement is growing for professional hospital nurses to devolve many of their nontechnical duties on the practical nurse. In turn, the Health Worker would be supervised by individuals who had taken postgraduate training in the various phases of the field such as mental, social, etc. The undergraduate training of this Worker could very well be set up in terms of the job analysis report to include certain of the fields now required in the undergraduate training of social workers and nurses.

It is greatly to be hoped that the current School Study of the National Nursing Council will give priority to the rapidly growing problem outlined above.

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Dec. 3, 1947

Clearing House on Public Health Salary Information

Salary Study of the Vital Statistics Section

AT the 75th Annual Meeting of the Association, Dr. Paul M. Densen, Chairman of the Vital Statistics Section's Committee on Professional Standards and Remuneration presented an interim report to the Section. He has prepared a summary of his interim report for the Clearing House, even though the final report has not yet been prepared.

The Committee on Standards and Remuneration was originally charged with the responsibility of obtaining up-to-date information on the salaries of professional personnel engaged in the field of public health and vital statistics. Since then the Section has also appointed a Committee on Opportunities in Statistical Work under the Chairmanship of Ellen W. Jones and the Association's Committee on Professional Education has appointed Dr. W. Thurber Fales as Chairman of its Subcommittee on Education Qualifications of Personnel in Vital Statistics and Vital Records. At a meeting of the chairmen of these three committees in April, 1947, the Committee on Standards and Remuneration was asked to enlarge the scope of its inquiry to include consideration of the educational background of persons in the field, of the manner in which they first learned about statistics in general and public health or vital statistics in particular, and of the number of existing vacancies.

In order to present as complete a picture as possible, the committee decided not to limit its efforts to state departments of health but to get information on salaries in the federal government, in various foundations and societies concerned with public health matters, and in schools of medicine and of public health.

It was then found that the Division of Public Health Methods of the U. S. Public Health Service was planning a study of salary scales to be done chiefly by staff visits to a good many states and cities to study the statistical organization. An agreement was therefore reached with the Service to have its staff member Mr. Swinney take our committee's questionnaire to the departments in his itinerary. This would yield information more quickly than a mailed questionnaire and would also tend to insure the reliability of the data through interpretation of the questions by one individual. Since the states visited by Mr. Swinney have the most extensive statistical organizations, it is felt that the information on the majority of statistical personnel in state health departments is fairly representative.

The first question the committee faced was what sort of personnel should be included in its survey. It wished to include personnel in "statistical positions" only but recognized that "statistical position" is exceedingly difficult to define.

In the states visited by Mr. Swinney the working definition used included:

1. All personnel classified as statisticians
2. All personnel doing work of an analytical nature demanding some knowledge of statistical principles and methodology
3. All personnel doing professional registration work (i.e., persons who worked on policy levels and who might be considered as potential registrars)
4. Other personnel reported as doing statistical work.

The instructions for filling out the questionnaires sent to the states not vis-

ited by Mr. Swinney were to include all positions to which any statistical work was attached, either of an analytical or clerical nature. It was thought that this would insure that no positions which should be included would be omitted and that, from the job descriptions, persons fitting in the groupings used by Mr. Swinney could be selected.

It was decided to have the questionnaire filled out by the worker rather than by the organization since much of the information desired would be best known to the individual. The worker was asked to describe his duties in his own words since it was thought that this might afford a better description of his job for the committee's purposes than the merit system classification description.

Data on vacancies and plans for expansion were secured by means of an organization schedule for states not visited by Mr. Swinney. For those that were visited, the information was made available from data collected by Mr. Swinney. In addition, material already present in the files of the Division of Public Health Methods and of the National Office of Vital Statistics was utilized.

RESULTS

The findings here presented are limited to the 23 states visited by Mr. Swinney and to broad categories rather than detailed breakdowns. These preliminary data are heavily weighted by the returns from a few states with large statistical organizations. The data are presented here more to illustrate the nature of the analysis than for their own sake. Interpretation of the data must await more detailed analysis of the complete returns.

The first problem faced by the committee in the analysis of returns was to develop a classification of the various statistical positions. The multiplicity of job titles made it impossible to use these as a basis for classification. It was deemed unwise to force the returns into a theoretical classification. Instead, an attempt was made to develop a classification based upon the job descriptions given in the questionnaires. Accordingly the job descriptions were carefully studied *without regard to salary or title of job* and those questionnaires whose job descriptions were judged to be similar were placed together in one group. (Although this yielded several seemingly distinct groups it should be recognized that the scale of classification is actually a continuous one ranging from individuals just above the clerical level with very little independence of action to chiefs of division responsible for policy.) The classification resulted in two main groupings, chiefs of bureaus or divisions (represented by Groups I, II, and III) and various levels of subordinate personnel (Classes A, B, C, D). Each of these is described below: *

Group I (Chief Statistician)—Workers in this category are chiefs of a statistical unit engaged primarily in analytical work exclusive of registration activity. In coördination with other activities of the health department they are responsible for the development of a statistical program from the planning stages through the final analysis and presentation of results. They exercise considerable independence of action within the broad policies laid down by the health commissioner.

Group II (Registrar)—Chiefs of a statistical unit engaged primarily in the registration of births and deaths. Responsible for formulation of policy in relation to registration matters and at times for analysis of the registration function but not engaged in analysis with regard to health department activities as a whole.

* For ease of reference a descriptive term is placed in parenthesis after each classification. The use of letters to designate the classes is not intended to represent a decreasing order but to emphasize that there is a similarity of functions irrespective of title.

Group III (Chief Statistician and Registrar)—Chiefs of a combined registration and analysis unit. These combine the duties and exercise the responsibilities of the Chiefs in Groups I and II.

Class A (Assistant Registrar)—Individuals in this group usually function under the immediate supervision of someone in Group II. They ordinarily engage in no analysis but are given considerable responsibility for the routine production of vital statistics and may be directly in charge of a large clerical office. When necessary they may act in the place of the person in charge of the registration unit.

Class B (Senior Statistician)—Under the general supervision of individuals in Group I or Group III they are responsible for analysis of a high order of technical competence demanding a good general knowledge of public health. May consult with chiefs and other personnel of the health department with regard to planning of a study, collection of data, tabulation and analysis of results. Under general supervision only, may initiate studies and exercise considerable independence of action within broad policy lines laid down by the chief. Analytical work not confined to one particular aspect of public health.

Class C (Junior Statistician)—Individuals in this class are usually under the immediate and fairly close supervision of individuals in Class B. They do not confer, except on rare occasions, with chiefs of other divisions. They may supervise a small clerical or tabulating force or be responsible for some tabulating work.

Class D (Statistical Aide)—Workers in this class are responsible for the routine computation of rates and ratios and the construction of graphs and tables under the immediate supervision of someone in Class B or C. They may supervise the production of routine statistical reports and the abstracting of records for research studies after the general plan of operation has been laid down. They have little independence of action but carry on much of the day-to-day operation of the statistical unit.

The number of individuals in each of these classifications and their corresponding job classification are shown in Table 1. The need for some such classification is clearly demonstrated by the

TABLE 1

Distribution of Workers by Classification in Statistical Units of 23 State Health Departments

Classification	*Number*
Total	87
Group I (Chief Statistician)	3
Group II (Registrar)	12
Group III (Chief Statistician & Registrar)	7
Class A (Assistant Registrar)	6
Class B (Senior Statistician)	23
Class C (Junior Statistician)	19
Class D (Statistical Aide)	17

TABLE 2

Distribution of Workers According to Title of Position Statistical Units in 23 State Health Departments

Title of Position	*Number*
Total	87
Director, Division Records and Statistics	1
Director, Division Vital Statistics, Birth and Death Records	1
Director, Bureau Vital Statistics (Division Chief)	10
Assistant Director, Division Vital Statistics	2
Statistician and State Registrar	1
State Registrar and Director, Vital Statistics Section	3
Assistant State Registrar, Vital Statistics	1
Chief, Division Vital Statistics and Records	1
Head Public Health Statistics Section	1
Chief, Bureau Records and Statistics	1
Assistant Director, Bureau Records and Statistics	1
Supervisor, Public Health Statistics	1
Director, Statistical Service	1
Chief, Tabulating and Analysis Section	1
Senior Statistician	3
Senior Public Health Analyst	10
Assistant Statistician	2
Junior Statistician	7
Statistician	8
Statistician II	4
Statistician IIb	1
Statistician I	9
Junior Public Health Analyst	9
Public Health Statistician	1
Morbidity Statistician	1
Statistical Clerk	1
Statistical Aide	4
Clerk II	1

TABLE 3

Distribution of Workers by Classification and Salary Status, Statistical Units of 23 State Health Departments

Annual Salary Range	Classification of Workers							
	Total	Group I	Group II	Group III	Class A	Class B	Class C	Class D
Total	87	3	12	7	6	23	19	17
$1,000–$1,999	3	—	—	—	—	—	—	3
2,000– 2,999	37	—	2	—	4	4	15	12
3,000– 3,999	26	1	2	—	1	17	3	2
4,000– 5,999	19	2	8	5	1	2	1	—
6,000– 7,999	2	—	—	—	—	—	—	—

multiplicity of existing job titles, which are shown in Table 2 for the same group of workers.

It is the purpose of this report to explain how the data for the committee's study are being collected and to indicate the general method of analysis. This report will then serve as a background for further reports of the committee in which it is planned to present detailed tables of the findings. No interpretation of the material is attempted at the present time since it is heavily weighted by the returns of a few states with large statistical units, the effect of which cannot be determined until all reports are in. The committee also desires to make certain cross-tabulations of the data before attempting an interpretation. When all of the data have been collected it is hoped to compare the salary picture of persons doing statistical work with that of workers with equal responsibility in other fields of public health. Comparisons of federal, state, and local salary scales and of salaries paid by schools of public health and foundations may also be made.

In addition, information at present available to the committee on existing vacancies in state health departments is shown in Table 4. It should not be

TABLE 4

Analysis of 30 Vacancies in Statistical Positions, State and Local Health Departments, December 15, 1947

State or City	Title of Position	Number of Vacancies	Annual Salary Range
Alabama	Statistician	1	$2,100–$2,700
Arizona	Vital Statistician	1	2,880– 3,360
California	Associate Statistician	3	4,512– 5,496
Colorado	Public Health Statistician I	1	1,800– 2,400
Illinois	Statistician III	1	3,600– 4,800
	Statistician II	1	3,300– 3,840
Kansas	Senior Statistician	1	2,820– 3,900
Maryland	Statistician II	2	2,300– 2,875
Michigan	Director of Statistics and Records	1	5,280– 6,380
New York	Cancer Statistician	1	5,280– 6,380
	Statistician	3	3,360– 4,020
North Carolina	Statistician	1	3,300–
Ohio	Statisticians I, II, III	4	1,800– 4,200
Oklahoma	Assistant Registrar of Vital Statistics	1	3,900– 4,500
Pennsylvania	Biostatistician	1	5,000–
Tennessee	Statistical Aide	1	1,920–
Baltimore, Md.	Senior Statistician	1	2,800– 3,300 *
Detroit, Mich.	Medical Statistician	1	8,000–
New York City	Statistician I	1	2,401– 3,650
	Junior Statistician II	1	1,500– 3,060
Washington, D. C.	Statistician	1	4,149– 4,902

* Plus cost of living adjustment

thought that these vacancies represent the potential demand for statistical personnel. Rather they represent positions which, as far as is known, can be filled immediately. A better idea of the potential demand is the fact that 25 of 41 states replying reported plans for expansion in statistical work. This phase of the problem will be further developed in subsequent reports.

Health Officer for a Day

as told by BILL SILER to CHARLES B. FRASHER *

THAT was an exciting day in my life when I took over the duties of the Commissioner of Health for Oklahoma. You want me to tell you about it? Well, hang on and here goes. I hope you will excuse me for having been so ignorant about what the Health Department does but I just never had any realization that the programs of public health were going on in my state. I guess I have been too interested in the things immediately around me to observe how the government was being run. Of course I'm interested in the United Nations and aspects of international or national government. But local government has passed me by.

How did I get the opportunity of acting as Commissioner of Health? Well, yearly, in connection with Father and Son week, each of the six high schools is given the opportunity of electing a number of seniors to take over state, local, and school jobs for a day. Our school was assigned ten positions and I was elected to be the Commissioner of Health.

What did I know about public health before I went out to the Health Department? You'll laugh at this, but it's true. I didn't even know where the Department of Health was. Oh, I knew the old building which used to be an old soldier's home or something, was the place where you got a birth certificate. And I knew the Health Department was responsible for checking restaurants and swimming pools and making them clean. My Dad had discussed this with me when our gang wanted to arrange a supper party at a little local restaurant. Oh, and yes, I knew they had a V.D. program because you can see the signs in the busses and on the public trash cans. But I guess that's all I knew beforehand. It really was an eye-opener, that day as Commissioner. I wish I could tell all the high school kids about it.

What did I learn the day I was Commissioner? Well, that's a big order. It was so educational I couldn't take it half in. I spent the morning with Dr. Mathews, the real Commissioner, you know. And say, do you know he is the first state health commissioner to stay in office more than four years in our state. That isn't right, you know; you won't find many people as smart as Dr. Mathews is and he ought to be kept at his job regardless of who the governor is. It is more economical I guess and

* Mr. Frasher, Field Consultant in the Merit System Unit of the American Public Health Association was visiting Oklahoma when Oklahoma City was celebrating Father and Son week. He met William Howard Siler, a 17 year old senior at Classen High School who was acting as the Commissioner of Health for a day. The remarks in this article are taken as closely as possible from an interview with Bill Siler and are presented for the interest of public health workers.

he really seems to know what's going on. He keeps his people happy but he also has control and authority. I guess I'd call him a real administrator.

We spent some time going over the plant. I didn't know there were so many buildings there. Each building was full of people, each one working quietly and efficiently at his job, methodically and swiftly. It didn't seem like a government office in which there is loud talk and not much work and coke machines around. This seemed more like a business office.

We had lunch in the cafeteria. That was a wonderful cafeteria, good food served at low cost. It's a good idea I think.

The Sanitary Engineering program certainly made me think. The director showed me his organization chart and explained what each program was. I didn't know, for instance, that public health had any responsibility for checking food lockers and refrigerators. I knew food and drugs were controlled but I couldn't have told you who did it. I heard milk had to be pure but I just thought farms controlled this. (Bill called to his mother who was in the kitchen) Hey Mom, what kind of milk do we have? Raw milk? Do you mean Dad and I want raw milk? I guess we had better have homogenized after this. Oh, you say that it's pasteurized milk that is pure? Well I guess we'll have to have pure milk from now on. Say, there ought to be a law about pure milk if there is so much danger in raw milk. There ought to be a law preventing its being sold.

Vital statistics were kind of over my head but I guess the director knows the business. It seemed like a great deal of information was available through the work of the statisticians.

The V.D. program was a "slickie." I guess the department is doing more in V.D. than in any other program, at least it's more publicized. I knew something about it before I went to the Health Department. We all were given blood tests at our school. I guess the department should be most proud of the venereal disease program and how they have gotten the incidence way down.

And those little trucks that go around getting x-ray pictures; that's another good program. They ought to come to our schools and give us x-ray pictures.

The man doing the epidemic work sounded like a "brain" but he's really efficient. Do you know that he gets a report on diseases each day, and each night sends out a report on the diseases to all doctors. They also do vaccinations. I thought the schools did that.

The hospital program is a good one; they are building to give some more space for laboratories. The department approves plans for hospitals. They don't? Only those where federal funds are used? Heavenly days, someone messed me up! I thought all hospitals had to be approved. I still think it would be a good plan.

And say, that EMIC man had a "dilly" of a problem too. He told me of some of his problems and he is handling them well. That's a very good program.

I had a coke with the dental man. He has lots of problems too, believe me. It was an eye-opener to know that there was a state dental program.

There were other programs too, but I couldn't talk to all the people. Some of them were out working on their jobs and sent me notes. That was nice of them, wasn't it. I'd like to go back and see more of them some day.

The people are well chosen for their jobs. I thought the way they hired people was a good deal—you get people who know something about the job. I was interested to know that people had to take examinations and that the three top people were sent to the health department for them to make their choice. That certainly saves Dr.

Mathews lots of work, doesn't it? having an officer with the sole job of recruiting workers. Whoever thought up the idea had a brain. I didn't know it before but I know now that only a few departments get their workers on the basis of the worker's ability and not on his political strength. I certainly wouldn't choose a doctor for his political beliefs if I were sick. And I don't think political activity is important in electing health workers.

I learned another thing—that we have a city health department which does the health work of our community. I had supposed it was done by the state. The city Health Department knows the immediate health problems and can do something about them.

Do you know, this experience made me have a lot of faith in the Health Department and I can't describe how much I respect Dr. Mathews. He works Saturdays and week-ends and has, at times, worked all night. I don't know how one man can do all that he does but boy, he sure impressed me as being good! The work of the Health Department ought to be known by all of us citizens. When I finish college I doubt if I will work *in* the Health Department but you can be sure I'll work as a citizen and taxpayer *for* the Health Department.

Credit Lines

WHO AND CHOLERA IN EGYPT

"In a remarkable demonstration of how nations can coöperate against a common danger, cholera was confined to Egypt and brought under control in six weeks," says the December *News Letter* of the Interim Commission of WHO. The procurement of medical supplies was coördinated in the New York office which shipped by air more than 32 tons of vaccine, blood plasma, and other supplies urgently needed for the treatment and prevention of cholera. Cholera vaccine was made available by the United States, China, Indo-China, Japan, and Southern Korea. This meant arranging with United States manufacturers for new supplies of about 3,000,000 cc. of vaccine. In addition, 11 governments sent the Egyptian Government directly vaccine from supplies on hand as soon as they were advised of the outbreak. Thus Egyptian public health authorities were able to complete their anti-vaccination program by the end of November, nine weeks after the first outbreak was reported.

In procuring and shipping supplies to Egypt and neighboring states, WHO advanced nearly $150,000 for later repayment by the governments involved.

The epidemic did not gain a foothold in the cities and was confined largely to the Nile Delta. Furthermore, the case fatality rate was less than 50 per cent compared to an apparent rate of 85 per cent in the 1902 epidemic. "This is due primarily," says the WHO report, "to the tremendous efforts of the Egyptian public health authorities backed up by the resources of many nations coöperating through WHO." Another illustration of the fact that coöperation is automatic to meet a crisis but less active to prevent one in the indefinite future.

SAVING EVERY PERMANENT TOOTH

The Dental Division of the Kansas State Health Department, Leon R. Kramer, D.D.S., Director, makes an interim report on its program. In a number of schools of the state, it has in operation a program for saving the teeth of school children. In 1945, the Baldwin Elementary School, after carrying on the program for five years, for the first time, reported no loss of permanent teeth among its 184 children enrolled.

In 1947, the Prairie School, with 485 children enrolled, reported that not a single child had lost a permanent tooth except in two instances for orthodontic reasons. For five consecutive years this school had attained 100 per cent correction of dental defects.

The program consists of an annual dental examination in the schools made by local dentists. Included also are classroom instruction, follow up activity, free dental care for children unable to pay, and excused absence from school on request of dentist to fill dental appointments.

ESOTERICA

The November issue of *Ciba Symposia* which is published for the interest of the medical profession by Ciba Pharmaceutical Products (Summit, New Jersey) is devoted to "The Prescription—from Antiquity to the Renaissance" with many interesting facts and illustrations for the antiquarian. The text is by G. Kasten Tallmadge, M.D., Ph.D., and the illustrations are taken from a variety of ancient documents.

JUNIOR LEAGUE SPONSORS BLOOD CENTER

Milwaukee (Wisconsin) reports an interesting example of lay agency contribution to community needs. The Milwaukee Junior League has opened a

blood center which it has underwritten for five years on a non-profit basis. The Center has been approved by the Milwaukee County Medical Society, and private hospital blood bank facilities have been turned over to it. The medical director is Tibor J. Greenwalt, M.D., who will have the assistance of technical personnel and Junior League volunteers.

50 COMPULSORY SICKNESS INSURANCE BILLS IN 16 STATES—DEFEATED

The Research Council for Economic Security (105 West Monroe Street, Chicago 3) has recently published a pamphlet, illustrated with graphs, analyzing the 50 compulsory cash sickness and related bills that were introduced in the 1947 legislatures of 16 states. This is five times the number of such bills introduced a decade ago. All of the bills were defeated, one having passed a state legislature only to be vetoed by the governor.

The Council takes this to mean, not a decreasing demand for this type of legislation, but rather uncertainty in the minds of legislators as to what type of plan is best. Says the report, "The recent trend toward greater activity is likely to continue. This pamphlet is issued in the realization of the need for paying close attention to those developments."

NEWS ON THE CANCER FRONT

Several items of interest in the cancer world have recently come across the Credit Lines Editor's desk.

The *Cleveland News* of October 23 reports that in Mansfield, Ohio, a cooperative cancer clinic has been opened that "is pacing the nation . . . to track down early cancer invasion." Among its reported unique features is that it brings together assorted community agencies that have hitherto been virtually strangers, that it is the first Ohio clinic to win financial support from the State Department of Health, that it has been set up by the Richland County Medical Society, and receives support from the American Cancer Society, from the Mansfield General Hospital, and from city and county health departments. More details can be secured from Fred O. Tonney, M.D., Richland County Health Commissioner, Mansfield, Ohio.

In New York City, the first cancer detection clinic to be operated by the municipal department of health is reported (Kips Bay-Yorkville Health Center, 411 East 69th Street). This is a diagnostic clinic purely for referral of patients requiring medical attention to private physicians or other clinics. Here too, the effort is coöperative, the New York City Cancer Committee, Cornell University Medical College, and the Strang Cancer Prevention Clinic of Memorial Hospital sharing sponsorship. The director is Emerson Day, M.D., Assistant Professor of Public Health and Preventive Medicine, Cornell University Medical College.

The Public Affairs Committee has revised its *Pamphlet No. 38* on Facing the Facts about Cancer. This brings up-to-date the figures on cancer incidence and the information on cancer organizations and their activities which have expanded extensively since the pamphlet was first produced. Available from Public Affairs Committee, 22 East 38th Street, New York 16. 20 cents each; special rates on quantity orders.

"TIC" CONTINUES TO TICK

Tic, the enterprising magazine of a commercial dental prosthetics manufacturer that discusses the social aspects of dentistry and which has previously been mentioned in Credit Lines, devotes its November, 1947, issue to the story of the Cleveland Health Museum. Prepared by Henry A. Hartman, D.D.S., Health Officer of Parma, Ohio, and illustrated with many photographs of the museum's exhibit, this brings the story of the Cleveland Health Museum

to a new audience. *Tic* is available from Ticonium, 413 North Pearl Street, Albany, N. Y. at 25¢ per copy, $2.50 per year.

HAVE YOU A PROBLEM CHILD?

The American Academy of Pediatrics announces that it has written and produced a new 16 mm. sound film on the "Problem Child." With a running time of about 25 minutes, it deals with feeding schedules, food and toilet habits, discipline, parental attitudes, etc. It is intended primarily for special lay groups such as Parent Teacher Associations. It is being distributed free of charge to both lay and medical groups by the Pet Milk Company, Research Division, St. Louis 2, Mo.

The picture was made possible by a grant of funds from Pet Milk to the Academy. In requesting the picture, prospective users are asked to give the date when the film is to be shown and to allow at least three weeks for handling the order.

HEALTH PROGRAM AIDS

Agenda began publication in July, 1947, as "the magazine for women's club leaders" with the purpose of furnishing aids in program making for women's clubs.

The second issue, September, 1947, carried two articles, one on "Better Health in Your Community" by Surgeon General Thomas Parran of the U. S. Public Health Service, and another on "How To Form a Health Council" which was the case history of the development of the public health lay committee of Montgomery County (Maryland).

Number 3, for November-December, has an article by bandleader Kay Kyser on "How to Make People Health-Conscious" in which he reports on some of the publicity aspects of the Good Health Campaign being carried on by the North Carolina Good Health Association. Another article on "'Selling' Health Through Movies" is the story of the movie health program in Houston, Tex. Apparently pages 24 and 25 of these issues are being reserved for health matters.

The magazine is published by the Printers' Ink Publishing Company, 205 East 42nd Street, New York, but it is not sold either at subscription prices or on newsstands and it is reported that back issues are no longer available. The magazine, however, is distributed to practically all public libraries. Write to the publisher if you are interested in knowing how to get on the distribution list.

TELEVISION HEALTH EDUCATION

The American Medical Association, conscious of its history as a pioneer in health education by radio, is preparing for television. The Associate Director of its Bureau of Health Education, William W. Bolton, M.D., has prepared a small 22 page pamphlet, *Television Handbook*. This outlines the problems and form of presentation of health education through television and summarizes some 30 television programs that have been given.

The A.M.A. has also had a second printing of its radio handbook, first published in 1946. The two handbooks are alike in format and printing.

The handbooks are available from the American Medical Association, 535 North Dearborn Street, Chicago 10. 50 cents per copy; quantity prices on request. Sample copies will be furnished to official and voluntary health agencies.

WHERE EACH TOWN STANDS

It is well known that Connecticut has no full-time local health officers except in 13 cities comprising about half of the state's population. All the rest of its 169 towns, all but 21 with populations of less than 20,000, have part-time

health officers, and many of them have other personnel.

In the November *Connecticut Health Bulletin,* James A. Dolce, M.D., Chief of the Division of Local Health Administration, analyzes the 1946 expenditures for health services of the 169 towns and cities of the state. He finds that they spent an average of 88 cents per capita; 94 cents in towns of less than 1,000 population, and $1.10 in cities of 50,000 or over, with towns between 2,500 and 20,000 averaging the least, 63 cents. One town of 300 persons spent $4.20 and another of 1,300 spent $18.

These cold figures are a telling argument for the consolidation of towns into health districts, for a part of the cost of operating which a new Connecticut law now provides.

CHRONICLING WORLD HEALTH

Volume 1, No. 1-2 of the *Chronicle of the World Health Organization* appeared recently. It aims to be "a readable summary of the activities of WHO" and "to mark the stages in the attempt to implement, through international action, the declaration of its Constitution that 'the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being.'"

Published in the five official languages of UN, its subscription is $2 for 1947, and is available from the WHO Interim Commission Headquarters Office, 350 Fifth Avenue, New York 1. Specimen copies sent free on request.

FROM BOWDITCH TO GETTING IN MASSACHUSETTS

The first 75 years of the Massachusetts Department of Public Health, completed in 1944, have now been set down for future students and historians in a special number of *The Commonhealth,* a publication of the department. Entitled "75th Anniversary of the Massachusetts Department of Public Health, 1869–1944," it is written by Raymond S. Patterson, PhD., Director of Health Education, John Hancock Life Insurance Company, assisted by Mary Carr Baker, Supervisor of Health Education in the Massachusetts Department of Public Health. It has the unmistakable Patterson flavor familiar to *Journal* readers through his Selected Public Health Bibliography with Annotations.

Using the surveyor's technique as analogy, the authors divide their story into five bench marks, 1869, 1879, 1886, 1914 and 1936, giving the influences and events of each and relating the Massachusetts story to that of public health in the United States. There are pictures of the 8 state health commissioners (or secretaries of the state board of health) from Bowditch in 1869 to Getting of today.

This pamphlet of some 70 pages should be in every library as a part of the permanent record recalling the establishment of the first state board of health in the United States. Though the report does not so indicate, it is presumably available from the Massachusetts State Health Department, State House, Boston.

OKLAHOMA'S MERIT SYSTEM

As a result of the Credit Lines items about Oklahoma's 6th annual *Merit System Council Report* (Jan, 1947, p. 98), it has been reported that a number of health officers requested the pamphlet and were stimulated to get further information about merit systems.

The 7th *Report* for the year ending June, 1947, is now at hand. It maintains the high standard set in the earlier, doing a particularly good job of simplifying in layman's language and with humorous illustrations some questions and answers about the merit system's advantages to worker and public.

Some indication of the extent of Oklahoma's Merit System operation is that

there were about 5,500 applications for examinations, of whom about four-fifths were accepted. Fewer than three-fourths of those accepted appeared for the examination and about three-fourths of these passed. Thus more than twice as many applications were processed in order to get about 2,500 eligible candidates for state positions.

The public health nursing shortage is highlighted by the fact that of 25 nurses applying for two examinations, 23 were accepted but only 5 appeared, all of whom passed the examination. Fewer than half of sanitation personnel accepted for examination appeared but all who took the examination passed. A total of 83 persons applied for health unit clerk examinations; 51 were accepted; 12 appeared for the examination and only 6 passed.

If more merit system administrators prepared such understandable reports, much of the prevailing mystery about merit systems would be dispelled.

SAYING IT WITH PICTURES

The extent of tuberculosis in Alaska, where the death rate in 1945 was nearly 9 times as great as in Continental United States, has been widely discussed in recent months. That some action is being taken is indicated by *Home Care of the Tuberculous in Alaska*. This is an excellently printed pamphlet in words and pictures that tell the story of fisherman Brown's 16 year old daughter, Sally, who contracted tuberculosis, was diagnosed at an early stage and recovered after a long period of home care.

The homely details of sterilizing dishes, preparing the patient's bed, taking temperatures, and all the necessary improvising that are a mystery to the average uninfected family are told step by step in words and photographs of actual people in an Alaskan home.

The handbook is the result of coöperative effort by the Alaska Native Service, the Alaska Tuberculosis Association, and the Territorial Health Department, with assistance from the U. S. Public Health Service and the U. S. Indian Service.

Available from the Alaska Tuberculosis Association, Juneau, $1.50.

HEALTH SERVICES IN BRITAIN

Britain's National Health Service Act became law in November, 1946, and will come into full operation in mid-1948. The Reference Division of the British Information Services is distributing a pamphlet with the above title which in concise and simple form explains the new Act, how it has developed, how it will work, and what it will provide. It gives particular attention to the effect the new Health Center Scheme will have on the role of the general practitioner as well as the interrelation of the various medical and public health services.

As to the historical background of the National Health Service Act, the pamphlet says:

> The National Health Service aims at ensuring that everyone in Britain, irrespective of means, age, sex, or occupation, shall be entitled to the best and most up-to-date care available. This universal concept of national health services is an innovation, but it is not revolutionary.
>
> It is a logical development showing continuous evolution over the past centuries from Government measures to check the spread of pestilence to the modern concept of maintaining the health of the individual, whether he is a menace to the community of not.

Available without charge from the British Information Services, 30 Rockefeller Plaza, New York 20.

THIRTY YEARS OF UNION MEDICAL SERVICES

Coinciding with its announcement of a million dollar expansion program, the Union Health Center of the International Ladies Garment Workers Union of New York City (275 Seventh Ave.) recently issued a *Triennial Report* for

the years 1944–1946. This three year report traces the history of the Center's service in the more that a quarter of a century since it started giving service.

In 1916 the medical services were limited to the amount of work a general medical doctor could do with the aid of his stethoscope and his medical knowledge. In 1916 total services numbered about 7,000; in 1946 nearly 208,000. In the intervening years, 12 specialized clinics had been added and the worker's fee of $1 now includes not only the basic physical examination but laboratory and x-ray tests, physical therapy treatments, and service in specialty clinics.

The Union now has a complete health and welfare service based upon a prepaid medical plan. Its experience and that of similar plans like the CIO Labor Institute in St. Louis has much to offer the developing programs of medical care, industrial and other.

THE MENTAL HEALTH PROGRAM

There are now reported to be 8,000,000 persons in the United States suffering from some form of nervous or mental illness. Moreover, since the incidence of mental disease rises with age, an increase is forecast for the coming years. Which makes it none too soon that there is now a three-way national mental health program in operation, authorized by the 79th Congress in 1946 and implemented by Congressional appropriation of $7,500,000 in 1947.

Over a million dollars annually will be made in grants to public and private non-profit institutions for the development and improvement of facilities for training mental health personnel. Nearly half a million will be spent on grants-in-aid to similar institutions for research in the mental hygiene field. Three million dollars is earmarked for grants-in-aid to the states for development of local mental health programs, particularly for the development of traveling mental hygiene clinics in sparsely settled rural areas, areas which have had practically no facilities at all. The goal is one outpatient mental health clinic for each 100,000 of the population as soon as personnel is sufficient to meet this demand.

Other activities to be carried out through the national mental health program are field studies, inservice training for general practitioners, and administration of hospitals for the mentally ill. An appropriation of $850,000 has also been made for a site for the National Institute of Mental Health to be constructed in Washington.

In December, 1947, on recommendation of the National Advisory Mental Health Council, a grant was made to the International Committee on Mental Health for a study of the effects of war, the report to be presented at the August International Congress on Mental Health in London. A grant was also made to the National League of Nursing Education to set up a professional accrediting body in the field of psychiatric nursing.

CHILDREN'S FUND OF MICHIGAN

The *Eighteenth Annual Report* of the Children's Fund of Michigan for the year ending April 30, 1947, is of particular interest because of its paragraph on county health departments which says in part, "For the first year no appropriations were made to numerous county health departments that at the time of their origin were promoted and subsidized by the Children's Fund . . . Each county or district health department has continued to receive its annual appropriation from the supervisors and no health unit established by the Children's Fund has ceased operations or failed to carry on a reasonable good program . . . and have become integrated into the county government and county life."

This led the Credit Lines Editor to look into earlier reports. He found that

the first help to local health units was less than $8,000 to two four-county units in 1930. The next year, four units received more than $60,000; the next year five received more than $75,000. Year by year aid was extended until the peak of 1940 when $210,600 was given to 19 health units involving 41 counties. Since then the program has declined until the current year when all the units stood on their own local governmental feet, as it were. This would appear to be an outstanding example of pioneering, one of the basic functions assigned to voluntary agencies by the Gunn-Platt Report.

STANDARDS FOR LOCAL HEALTH DEPARTMENTS

Effective October 1, 1947, the California State Board of Health adopted standards and recommendations for local public health departments as a basis for the allocation of the $3,000,000 appropriation made by the 1947 legislature for the development of local health services. These standards were first recommended by the California Conference on Local Health Officers before adoption by the State Board.

Although California is perhaps not unique in having established definite standards for local health departments as a prerequisite to state aid, the methods of their adoption and their general outline might serve as a stimulus or a guide to other states in developing such definite standards.

The first requisite is that there shall be a full-time medical health officer except that counties with populations of less than 25,000 with a part-time health officer may be given provisional approval until June 30, 1948, while a plan for full-time service by joining with contiguous counties or by some other means is developed.

A local health department must maintain a headquarters office on a full-time basis, must have a clerical staff under proper supervision, a public health nursing staff under supervision (one nurse per 5,000 population is recommended; if school nursing is included, one per 3,500; and if bedside nursing also, one per 2,000), an adequate sanitation staff with at least one worker per 20,000 population recommended; and must carry on the six basic standard health services.

Available from California State Department of Public Health, 760 Market St., San Francisco 2.

LOOKING AT LOCAL GOVERNMENT AGAIN

The local government studies of the Council on Intergovernmental Relations have previously been mentioned in Credit Lines (1946, pp. 184, 1327; 1947, p. 601). Further details have now been published. In September, the National Council on Intergovernmental Relations, Washington, D. C., published *Grass Roots: A Report and An Evaluation.* It gives the backgrounds of the Spelman Fund supported project to strengthen local government by rationalizing it.

This pamphlet tells how the five counties in which the experiment is being carried on—Blue Earth, Minnesota; Henry, Indiana; Colquitt, Georgia; Santa Clara, California; and Skagit, Washington—were selected, how the local councils were set up and given responsibility.

In each of the counties, the mosaic of political pieces that make up the sum total of local government are analyzed and a program of coöperation between them put into effect. Contrary to previously accepted easy judgments not all the confusion is due to the federal government's operation in a local area.

Following the earlier Blue Earth County *Report* mentioned in Credit Lines of February, 1946, a later one, *A Study of Public Health Administration,* has been issued. It found that in this county of fewer than 40,000 per-

sons, there were 24 health officers, 6 public health nurses, divided among 5 jurisdictions but none in either towns or villages.

These studies are worth following. In their various approaches they all add up to more coördination of local government rather than transferring responsibilities to state or federal governments.

TYPHUS IN WORLD WAR II

The December, 1947, issue of the *Military Surgeon* carries the article "Typhus on The Western Front in World War II" by Lt. Col. Hartwin A. Schultze, M.C. That typhus did not develop into a major cause of morbidity and mortality during the last war is attributed to the skill and united efforts of the military and civilian personnel working in preventive medicine and public health. Colonel Schulze gives a brief account of what some of these preventive measures were as undertaken by the military forces. Aside from military organization and administration, he attributes the remarkable control of typhus to the use of immunizing vaccine and DDT.

THE HEALTH STORY IN HAWAII

In a pocket size pamphlet of about 100 pages, the Public Health Committee of the Honolulu Chamber of Commerce tells Hawaii's current health story. In brief text and in photographs, it tells what are the chief health problems and the various health services available to meet these problems. Background data on industries, population, schools and the island's history are included. It may surprise Mainlanders to discover that for tuberculosis and typhoid alone among a dozen infectious and parisitic diseases, the death rates are higher in Honolulu than in Continental United States. This little booklet should serve as a useful health education tool for the Hawaiian population but also has good capsule information for the visitor. Its photography and printing are uniformly good. R. G. Nebelung, Dr.P.H., is the Executive Director of the Public Health Committee.

NEW YORK H.I.P. BURGEONS

The Health Insurance Plan of Greater New York has been developing so rapidly that three of its 25 groups have begun to publish bi-monthly bulletins to keep their members informed, as well as a means of health education. *Doorway to Health* of the Central Medical Group of Brooklyn (membership 8,000) first came out in September, *To Your Health* of the Central Manhattan group and *Richhaven Medical Group Review* of the Richhaven, Queens Group, in November. They represent an interesting illustration of closing the language gap between professional and layman.

H.I.P.'s enrollment at the end of 1947 was 110,000.

CONSUMERS UNION ON HEALTH MATTERS

Credit Lines has been delayed in acknowledging receipt of *Consumers Union Reports*. Early in 1947, its health and medical section which is under the general supervision of its medical adviser, Harold Aaron, M.D., was enlarged. Each monthly issue has a scientific discussion in simple language of some medical problem, particularly one around which superstitions and old wives' tales or a great curtain of secrecy have developed. It is also on the lookout for quackeries and exaggerated claims.

Samples of its articles are: The Irritable Colon (April), Tonsillectomy in Children (May), The Problem of Infertility (July), Government and Medicine (April), and The Rise and Fall of Fleischmann's Yeast (September).

BUSINESS CONCERNS WILL HELP TOO

The Massachusetts State Department of Health, with the financial assistance

of the United-Rexall Drug Company, has prepared and distributed a *Handbook for Physicians,* which presents in condensed form the services offered to physicians by the Department of Public Health and the facts a physician should know concerning the practice of medicine in the state. The Professional Relations Department of the drug company helped in the preparation of an appendix that includes a compilation of Massachusetts laws of interest to the medical profession.

WORTH ACQUIRING

Help Fight Tuberculosis—A Story for You—a new booklet of information on tuberculosis intended for elementary school children. Its language, format, and printing are all suited to the youthful reader who, it is presumed, will take the story home as well. Published by the National Tuberculosis Association and available from state and local associations.

Dental Health Program for Elementary and Secondary Schools—prepared by the Council on Dental Health of the American Dental Association is the first part of a manual on the dental health program to be prepared. Later pamphlets will cover prenatal and preschool dental health programs. The present pamphlet discusses the financing, administration, and lay education and participation in a dental health program. The printing is excellent and black and white illustrations help to carry its message.

Sample copies free and quantity orders at 15 cents per copy from the American Dental Association, 222 East Superior Street, Chicago 11.

UNESCO and You: A Six-Point Program—This is described as "questions and answers on the How, What, and Why of your share in UNESCO." The six-point program for individuals gives suggestions on how to help rebuild war devastated schools and libraries, how to make personal opinion felt on the side of peace, how to train the younger generation in peace, how to dramatize UNESCO's aims in one's community, how to take part in its continuing adult education, and how to establish interracial and inter-religious understanding in a community. Available from the U. S. Government Printing Office, Washington 25. 15 cents.

Broken Homes—This 135th pamphlet of the Public Affairs Committee has as its thesis that tightening divorce laws is a mistaken attempt to apply legal remedies to a problem that is sociological and mental. "A modern marriage must be held together from within rather than from without," says the author, George Thorman.

This same agency's *When You Grow Older* is another recent publication and is a plea for the young and middle aged to prepare themselves for retirement age not merely with the old fashioned copybook thrift but chiefly with something interesting to do and with learning to live with one's age as to diet, exercise, etc.

Public Affairs Committee, 22 East 38th Street, New York 16. 20¢ per pamphlet; less in quantity.

Social Service and Rehabilitation in a Tuberculosis Sanatorium—Credit Lines is indebted to one of its Fellows, Lillian Wurzel, Medical Social Worker of the Los Angeles Tuberculosis Sanatorium of the Mt. Sinai-Duarte National Medical Center, for this symposium by the staff members of the sanatorium. It deals with the "mind-salving measures" necessary to the cure of the patient in addition to medical and surgical measures.

Available from Mt. Sinai-Duarte National Medical Center, 208 West 8th St., Los Angeles 4.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Unto the Least of These—Social Services of Children—*By Emma Octavia Lundberg. New York: Appleton-Century,* 1947. 424 pp. Price, $3.75.

This is a good source book for those deeply interested in the development of social services in this country, and also gives a general picture to those less oriented. The book should be of particular value to those who work in the public health services for children and do not have a clear idea of the function and operation of child welfare services. The book discusses social welfare and its history in this country and considers in some detail the problems of foster care, of delinquent and neglected children, and of public and private agency services for them. Historical and documentary material are scattered throughout the text. In the opinion of this reader, two chapters devoted to the contributions of various individuals seem to be inserted to not very good purpose in the middle of this story.

The author, who has long been associated with the child welfare work in the federal Children's Bureau, has approached different topics with varying degrees of understanding and breadth of vision. For example, in a discussion of care for foster children, we find this sentence:

> Those of us who remember the bitter controversies, most of them academic and partisan, which raged two decades ago over the question of institutional *versus* family-home care know how futile was this discussion of methods of care, and how it bypassed the vital issue of the circumstances under which a child should be received for care by *either* institutions or child-placing agencies.

The broad approach that this point of view indicates to the foster care program is, however, not apparent when day care for children is discussed. Here, consideration of the contributions made by research groups in child growth and development, by progressive nursery schools, etc., is almost entirely ignored. The problem is seen in the following terms:

> Experience during the past few years has shown that the states and communities must assume public responsibility for the proper care and protection of children who are orphans for the day, and that proper provision for this form of care demands the combined efforts of agencies in the fields of social welfare, health, and education.

True, there is brief mention of the rôle which day care can perform "in the physical and mental development of young children," but there is no real consideration of the value of social and group experience for young children for the sake of the children themselves regardless of their "orphan state."

It is also of some interest that in the discussion of federal aid for services to children great emphasis, as is to be expected, is placed on child welfare services and some attention given to services for crippled children. The assistance given through maternal and child health funds available also through the Social Security Act is ignored. Actually, however, this cannot stand as a criticism of the author for, as one looks at child welfare services in general, he sees that they too follow the pattern which the author has presented.

LEONA BAUMGARTNER

Science and Public Policy—*Volume I. A Report to the President by John R. Steelman, Chairman, The President's Scientific Research Board.*

Washington: U. S. Government Printing Office, 1947. 71 pp. Price, $.20.

This report, prepared by the President's Scientific Research Board, provides a valuable summary of present official and private resources in this country for scientific research and a suggested plan for the rapid expansion of those resources. Although until World War II we had never consciously defined our objectives or organized our resources for science, there had been a rapid growth in research expenditures, rising from $166 million in 1930 to $345 million in 1940. In order to meet the defense needs and economic requirements of the country the report strongly recommends that annual expenditures for research and development be increased as rapidly as facilities can be expanded and trained man power be increased. At the moment it is estimated that the total research funds available for the nation are about as high as they can effectively go in view of the limitations in trained man power and facilities. The report advocates, however, that the present research budget should be doubled by 1957 so that at the end of a ten year period at least one per cent of our national income shall be devoted to research and development in the universities, industry, and the government.

The drying up of scientific sources in Europe, the interruption of normal interchange of scientific knowledge and the over-emphasis during the war years on applied rather than basic research make it imperative that the federal government launch a comprehensive program of development without delay. In order to promote such a program effectively the Board recommends that a National Science Foundation be established with a director appointed by and responsible to the President. It is proposed that this Foundation should support basic research in the universities and nonprofiit research institutions at a progressively increasing rate, reaching an annual expenditure of at least $250 million by 1957, for, as Sir Henry Dale pointed out in a recent address, "to concentrate almost the whole of a rapidly growing scientific effort on practical applications and developments, as happened during the war, would correspond to reckless cropping of land without care to nourish the soil." The Board further recommends that federal assistance to universities and colleges be developed in supplying laboratory facilities and scientific equipment as an integral part of a general program of aid to education. The program would also include scholarships and fellowships for students of the sciences.

Many other important aspects of a national scientific program which cannot be covered in a short review are discussed in the report. Anyone interested in the future of science in this nation will wish to study the report for himself with care. HUGH H. SMITH

Medical Care and Costs in Relation to Family Income—*By Helen Hollingsworth, Margaret C. Klem, and Anna Mae Baney. (2nd. ed.). (Bureau Memorandum No. 51) Washington, D. C.: Supt. of Documents,* 1947. 349 pp. Price, $1.25.

This is the second edition of a statistical source book on medical economics. It is a paper bound, 8 x 10 inch volume, published by offset printing, and contains 317 tables taken from various publications.

The sections added since the first edition contain 14 tables on the economic characteristics of the population and 21 on vital statistics. A 7 page table gives in detail the benefits included in each of 44 new industrial group insurance plans using commercial insurance companies.

This useful reference book should be on the shelves not only of all those interested in medical care and health in-

surance but of health departments, schools of public health, and community hospitals. It contains most of the statistical information commonly referred to.

Brief descriptions are given of 23 important studies from which tables are taken. These enable the reader to form his own conclusions as to value. A footnote under each table and an alphabetical list of 138 references gives the reader the sources of each of the tables.

The greatest value in this book is the newness of the material. Most of the tables are more recent than 1940 and a considerable number go beyond 1944. It is gratifying that this type of material is not only available but is being republished at reasonably frequent intervals. V. L. ELLICOTT

Water Supply and Sewerage—*By Ernest W. Steel. (2nd rev.) New York: McGraw-Hill,* 1947. 666 pp. Price, $6.00.

The author states that this book is an attempt to present for engineering students those essentials of principles and present-day practice necessary to solution of the problems of water supply and sewerage. The changes from the first edition (1938) are minor.

There are a number of details relating to developments in the past ten years which need correction by checking on current practice and reference to current literature. In some cases apparatus is described, without qualification, which has been more or less discarded since the first edition. The material on sludge treatment and sludge processing, as well as on handling garbage with sewage, needs revision.

The usefulness of the book would be enhanced by a concise bibliography of outstanding articles and books. Should a new edition be contemplated, the author would do well to submit the various parts of the book to practising engineers for correction and suggestion.

For health officers and others desirous of a general view of the field, the book should prove useful and informative.

LANGDON PEARSE

Food Poisoning—*By Elliott B. Dewberry (2nd ed.). London: Leonard Hill, Ltd,* 1947. 246 pp. Price, $5.00.

This volume, which is a revision of the book first published in 1943, brings together voluminous information in regard to the varieties, causes, modes of transmission and control of the agents which cause food poisoning. It is a valuable handbook for both the field investigator and the laboratory worker. In such an exhaustive treatment of the subject, much technical information and phraseology must necessarily be included. This does not make it easy reading for persons lacking the necessary scientific background.

The book is attractively printed and well illustrated for one which has been issued during this period of shortage of paper and restrictions upon printing. One interesting feature is the inclusion of photographs of investigators who have contributed to our knowledge of food poisoning. This will be the first time that many persons will have seen the likeness of some of these individuals.

There is a very thorough discussion of salmonella infections carried by food, staphylococcus food poisoning and botulism. Those who read the book should realize that toxins produced by salmonella organisms have not been conclusively demonstrated and there is reason to believe that such supposed toxins may really have been produced by accompanying staphylococci rather than salmonella organisms.

The information regarding contamination of foods by poisonous metals and that in regard to poisonous plants makes a very useful check list of items to be considered when investigating outbreaks of illness due to foods. A well selected bibliography at the end of each chapter

makes it possible to explore further into both the historical papers and the more recent investigations.

ROY F. FEEMSTER

5,000,000 Casualties on the Home Front—*By Louise Neuschutz. New York: Beechhurst Press,* 1947. 184 pp. Price, $3.50.

Correctly called a handbook of home safety, this volume gives evidence of a wide knowledge of the causes of accidents and impresses one with the author's sincere conviction that accidents can be stopped.

Mrs. Margaret Culkin Banning in a foreword calls upon the nation to wipe out accidents and expresses a belief that this book is a tool toward such action.

Physical and mental causes of accidents are touched upon, although the book leans quite heavily on the theme of carelessness, especially in accidents to children. Parents are given suggested reading.

In addition to the several chapters on home safety, chapters are included on farm safety, fire prevention, first aid, and safety for the physically handicapped.

Good type, attractive headings, chapter summaries and questionnaires, illustrations and an index, add to the readability and usefulness of the book. Case histories taken from newspaper accounts are liberally used.

Intended primarily for the homemaker, the book is of value to school teachers, public health nurses, health educators, and safety engineers. The author has the ability to arouse interest and to point out a job in accident control for every type of reader.

ETHEL M. HENDRIKSEN

Nursing—*By Lulu K. Wulf. New York: D. Appleton Century,* 1947, 534 pp. Price, $3.50.

Miss Wulf's treatment of the subject, nursing, is on an unusually broad scale, taking in nursing history, current trends and problems and then, under finer focus, nursing techniques and procedures. Her approach is fresh and typical, it is to be hoped, of all future textbooks which remind the student that the patient comes to the hospital from a home, usually as a member of a family and that he will return to a home, a place of work and to normal living in a community. Such headings as "Methods of reassuring the patient on admission to the hospital," "Interpreting hospital regulations regarding visitors," and "Helping the patient and his family plan for his care at home," are indicative of this richer point of view which widens the function of the hospital and of the nursing care given in it.

The descriptions of nursing techniques which occupy more than half of the book are simply expressed and clarified by effective illustrations. To an unusual degree they take into account the patient's reactions and his need of understanding what goes on around him.

The criticism which will be made by many readers is that in choosing a wide angle lens for her picture of nursing, Miss Wulf has necessarily had to omit many details, so that instructors will find many subjects, such as medications and diagnostic tests, only partially covered and frequently that which *is* given, duplicates the usual presentation in special textbooks. This reviewer, also takes exception to the order of subject matter which places today's developments in nursing at the beginning of the book, and closes it with "Preparing the patient for the morgue."

DOROTHY DEMING

Reading and Visual Fatigue—*By Leonard Carmichael, Ph.D. and Walter F. Dearborn, M.D., Ph.D. Boston: Houghton Mifflin,* 1947. 483 pp. Price, $5.00.

In this monograph the authors present a subject which has previously been

characterized by confusion in an orderly and intelligible manner. The initial chapter provides a summary of fact and current speculation concerning the physiology and psychology of vision and the phenomena which are generally grouped together under the term "visual fatigue." The visual task of "reading" is analyzed, with special attention given to the problems presented by typical forms of the printed page. The extensive literature on "blink-rate" as an index of visual fatigue is tabulated and discussed. A logical doubt concerning the validity of this criterion is clearly stated.

The problem of illumination is not answered by any definite recommendations. The extensive but inconclusive investigations of the lighting engineers on the one hand and the biological scientists on the other are cited. The differences of these groups, which exist only in special cases and have proved to be more apparent than real, are somewhat overemphasized by the present authors. Unfortunately the fundamental work of H. C. Weston (Medical Research Council — London — *Industrial Health Research Board Report 87)* on the relation of illumination and visual efficiency is not considered.

The authors' own work, involving the optical recording of eye movement and the electrical evaluation of eye muscle activity, is described in detail. Visual fatigue is concluded to combine, in varying proportions, mental, physical and chronic fatigue. As fatigue develops it results in an alteration of the general attitude of the subject and characteristic changes in the reading pattern. Breakdown of the coördinated physiological mechanism made up by the sensory cells, the eye muscles and all the related nervous system cannot be demonstrated and direct evidence of psysiological fatigue of the visual processes is evident only under the most abnormal conditions.

The authors have been very successful in presenting the main facts and the important experimental work relating to the problem of visual fatigue in reading. The unsolved problems, listed in every chapter, give a valuable reminder of the tentative nature of all present conclusions in this field.

DONALD YOUNG SOLANDT

Problems of Early Infancy — *Transactions of the First Conference, March 3–4, 1947. New York: The Josiah Macy, Jr. Foundation,* 1947. 69 pp. Price, $.75.

This publication is a record of the transactions of a conference sponsored by the Josiah Macy, Jr. Foundation and composed of a group of psychiatrists, psychologists, pediatricians, and educators interested in the emotional problems of early infancy. It was the consensus that emotional instability in children and mental disease have their origin during the early period of infancy and that the elimination of problems at that stage should provide a psychologically healthy adult. Comparisons of unique parent-infant relationships to mental disease rates of various races and nationalities are given as supportive evidence.

This group believed that in this country the greatest hazard to healthy emotional development is encountered during the lying-in period when the infant is subjected to routine hospital care, rigid feeding schedules, and separation from the mother. The "rooming-in" plan and "self-demand" schedule was enthusiastically proposed as a means of fostering a more healthy and natural parent-infant attitude and as a means of encouraging breast feeding.

There was considerable discussion concerning the most effective means of educating medical students, physicians, and the general public to this line of thought.

Very little or no objective data were presented in support of the proposal, which was more in the nature of an hy-

pothesis but which, after very careful trial and analysis, may prove to be helpful in the prevention of behavior disorders and mental disease.

RANDOLPH BATSON

Dr. Kirkbride and His Mental Hospital—*By Earl D. Bond, M.D. Philadelphia: Lippincott,* 1947. 162 pp. Price, $3.50.

This little book is both a historical document and a reminder that "we are better scientists than Kirkbride and his friends, but not better people" for all the fact that a hundred years have passed since Kirkbride's Pennsylvania Hospital was opened. The biographic section paints the picture of Kirkbride's Quaker family living in the neighborhood of Philadelphia and of the education of a physician from 1820 to 1830. During Kirkbride's life, Philadelphia grew from a town of about 100,000 to a city eight or nine times that size. Dr. Bond sketches in with interesting anecdotes, though at times rather too briefly for the reader's satisfaction, the effect of this growth on the mental hospital and on Kirkbride.

Kirkbride's ideas on the treatment of patients in a setting of pleasant and safe buildings and grounds remain the ideal of hospitals for the mentally ill. His firm belief that "the best hospital —best built, best arranged and best managed—is always cheapest in the end," is particularly pertinent at this time of large scale hospital planning and construction and applies equally for the general as for the special hospital. His gentle and kindly attitude toward his patients was based on a sincere respect for them, a respect which it was easier for him to teach his attendants because he held it so sincerely. Kirkbride's conception of occupational therapy was hardly behind the best thought of 1947, and his accomplishment was far above that of most hospitals of the present time.

This is not an intimate type of biography. We see the man Kirkbride largely through his acts, not by interpretation of what his biographer conceived his thoughts and drives to have been. His hospital plans, the daily routines he set up, his formal relations with fellow physicians are recorded in a simple, artless style most pleasant to read.

PAUL V. LEMKAU

City Finances: 1945. Volume 1: Individual City Reports (For each city having a population over 250,000); Volume 2: Topical Reports (On debt and other selected topics); Volume 3: Statistical Compendium (Cities having populations over 25,000)—*Prepared under the supervision of Allen D. Manvel, Bureau of the Census. Washington, D. C.: U. S. Government Printing Office,* 1947. Price, $1.25 each.

Here are statistical tables covering practically everything one might want, or at least could reasonably find out, about city finances. There are tables showing, city by city, expenditures for sanitation and for health and hospitals, as well as for other municipal functions.

MARTHA LUGINBUHL

Report of the Working Party on the Recruitment and Training of Nurses—*Prepared by Department of Health for Scotland, Ministry of Health, Scotland. London: His Majesty's Stationery Office,* 1947. 122 pp. Price, $.75.

Those who are concerned with the basic problems of recruitment and training of nurses in North America will be interested in this *Report* representing a study of more than one year for the British Ministry of Health and the Department of Health for Scotland. The attempt was made to review the problems of nursing from a very broad point of view.

There are familiar phrases among the

conclusions such as, "Nurses in training must no longer be regarded as junior employees subject to an outworn system of discipline. They must be accorded full student status. . . ." "If student nurses were relieved of domestic work and of nursing duties dictated solely by the staffing demands of hospitals, a period of two years would suffice for a general training." "The period of two years would be based on a five-day training week of 40 hours and would allow for six weeks annual holiday." "The explicit aim of the new system would be the development of a nursing service in closer accord with modern ideas of social and preventive medicine. Health nursing and sick nursing must be considered side by side."

This is an illuminating discussion of how the problem is being faced in Great Britain. REGINALD M. ATWATER

On Hospitals—*By S. S. Goldwater, M.D. New York: Macmillan,* 1947. 395 pp. Price, $9.00.

This volume will influence health-minded people of the future as much as Dr. Goldwater's dynamic personality stimulated those who were fortunate enough to know him personally. No other book can surpass it for sound philosophy, keen awareness of problems, and excellence of writing. One regrets only that *On Hospitals* does not tell us more about Dr. Goldwater as a man, a husband, and a father, as well as how his thinking led him to meet the opportunities of his time.

Every doctor, nurse, and person in public health should consider *On Hospitals* as a "must" to keep thinking in broad channels. JOHN E. GORRELL

Fungi—*By Frederick A. Wolf and Frederick T. Wolf. New York: Wiley,* 1947. Vol. I, 438 pp., price, $6.00—Vol. II, 538 pp., price $6.50.

This two volume treatise is intended as a reference and textbook. Volume I is devoted to a consideration of developmental morphology and taxonomy of fungi. Chapters 1 to 3 are devoted to a consideration of history, methods of isolation and cultivation, and classification and taxonomy. The remaining 5 chapters treat the specific classes. These chapters are unique in their presentation in that they stress the differential properties without going into the detail structural make-up of each species. They briefly point out the ecological and practical importance of these species.

The second volume, divided into 22 chapters, deals more specifically with the biology, chemistry, and activity of fungi, including pathogenicity for plants and animals. The two volumes bring together a wealth of factual data in this extensive field. In attempting to compress the essential knowledge concerning fungi into two small volumes it is to be expected that the treatment of each broad field must be sketchy. For example, the entire field of medical mycology is treated in chapter 16 of Volume II in 31 pages. *Coccidioides immitis* is discussed in 1 page with no reference to several noteworthy contributions of the past 3 years. Slightly over 1 page is devoted to *Histoplasma capsulatum*. Poisonous and edible fungi rate 25 pages, while soil fungi are allotted 16 pages. These figures are given to emphasize that the student of any special field will find little of value in his specific field. However, such was not the intent of these volumes. They do provide the basic information and do it exceptionally well. Both volumes are replete with references to which the authors repeatedly refer the reader for more detailed information in specific fields.

The numerous illustrations, many of which are original, are excellent. The discussions are lucid and the organiza-

tion of the material logical. In place of the usual summary at the end of each chapter, the authors have elected to use the term "implications." Any student of biology will find these well worth reading, even if he skips the rest of the volumes. The printing and binding are better than we have seen in a long time.

While these volumes will be found to be valuable reference books on the fundamentals of mycology for public health laboratories and workers specifically interested in mycology, they will find little use by other public health workers. M. H. MERRILL

Dynamic Mental Hygiene — *By Ernest and Catherine Groves. Harrisburg, Pa.: Stackpole Sons,* 1946. 559 pp. Price, $3.75.

This book is a very detailed exposition of mental hygiene as seen by two devoted workers who have spent their lives as non-medical counselors in the field of personality interactions. It is divided into two sections, the first tracing the mental hygiene implications of various scientific and professional disciplines, including the general field of medicine and the specialty of psychiatry along with biology, psychology, education, sociology, social work, the law, and finally, the ministry. In this section there is also a chapter on the home and its mental hygiene implications. The second section deals with the application of mental hygiene principles in family counseling, the area of the authors' particular interest.

The definition of mental hygiene exemplified in this book implies a vast range of knowledge on the part of the specialist in the field, as indicated in the table of contents. For the most part, the Groveses have this knowledge and it is coupled with good common sense in most instances. That such knowledge can be present in people of lesser endowment who are in service rather than academic positions is, however, extremely doubtful. This book is prepared, apparently, for use as a textbook, though at what educational level is unclear. It is extremely doubtful that it could be used to advantage below the level of the Ph.D. candidate, since it involves such a tremendous background of knowledge that those of less education would find it so far beyond them it would be useless. There is less of the material of personality development than might be expected in so thorough a treatise.

The attitude toward medicine reflects the non-medical background of the authors. Medicine is conceived as having primarily the function of ruling out or ruling in the presence of organic disease. The interrelation of the emotional life of the patient and his disease is freely granted, but the problem of therapy of the patient and his disease is considered to be primarily non-medical. ". . . some doctors have, more or less willingly as their individual preferences dictated, become mental hygiene counsellors as well as physicians" (p. 78). The psychiatrist is likewise considered to be one who confines his attention to the mentally ill, and to have mental hygiene only as a secondary interest. This attitude toward physicians probably is the result of long experience which has found them useful only in the ways stated; it should prove a challenge to those who feel that the medical student should be educated so that his medical view includes the personality functions of his patient.

The book is printed on very shiny paper which constantly gives extremely bothersome highlights that interfere with the reading. It is poor ophthalmologic hygiene to read it, a matter the publisher might well give attention to in future printing. PAUL V. LEMKAU

An Approach to Social Medicine —*By John D. Kershaw, M.D., D.P.H. Baltimore: Williams & Wilkins,* 1946. 329 pp. Price, $4.50.

Dr. Kershaw, a British Medical Officer of Health, has formulated an approach to social medicine that will surprise most public health readers in this country. It is a philosophical account of the social functions of medicine which hardly mentions health insurance or group practice, makes only passing comment on problems like the distribution of medical personnel and facilities, or the incidence of illness in different population groups, and offers no discussion on the administration of various programs of medical care.

Instead, this comprehensive volume takes a truly Aristotelian view of social medicine, a view so broad that strict preventive or therapeutic services, as we usually understand them, play only a minor part. Rather it is the fundamentals of community organization, economic relationships, law, social psychology, and such subjects that comprise Dr. Kershaw's sweeping analysis of the "anatomy," "physiology," and "disorders" of society. The discussion of "health and sickness in society" deals briefly with some of the ethical and humanistic problems of surgery, obstetrics, industrial hygiene, communicable disease control, and other special fields. Fuller discussion is offered on the significance in the healthful life of food, housing, work, leisure, sex, genetics, and education.

This study can probably be best described as a general social critique, written rather incidentally by a physician. It is mindful in some ways of the sociological writings of Edward Bellamy or Lester Ward, with all social functions described somewhat mechanistically as adjusted to social needs, though recommendations for improvement are offered. The entire concept of social medicine is under active discussion today. It is likely that American definitions of the field will be somewhat more restricted, but Dr. Kershaw's broad-gauge view provides valuable perspective against which our approach can be hammered out.

MILTON I. ROEMER

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Last Word Department—In summary form, the nutritional advantages of breast milk and the emotional advantages of breast feeding are discussed, together with objections and contraindications. The statement carries top-notch approval.

ALDRICH, C. A., *et al.* The Advisability of Breast Feeding. J.A.M.A. 135, 14:915 (Dec. 6), 1947.

You Buy Health—Possibly you will not be surprised by the findings of this study—that total death, infant and maternal mortality rates, as well as death rates from certain diseases vary inversely with family income status—but you should know about it for you will want to preserve the paper for ammunition in case you find yourself in a medico-economic argument some day.

ALTENDERFER, M. E. Relationship between per Capita Income and Mortality, in the Cities of 100,000 or More Population. Pub. Health Rep. 62, 48:1681 (Nov. 28), 1947.

British Health Services—Everyone who has access to the publication should make a practice of reading the "Letter from Britain" section of the *Canadian Public Health Journal*. These little essays reveal the adult frame of mind with which your conservative Briton perceives the encroachments of socializa-

tion, making the best of what must seem to him a pretty dubious bargain. Wouldn't it be wholesome if some of our bad-name-calling protagonists could catch a little of this infectious emotional maturity?

BROCKINGTON, F. Letter from Britain. Canad. Pub. Health J. 38, 11:552 (Nov.), 1947.

Stopping Epidemic Diarrheas—In the last decade a revolutionary change has come about concerning childbirth. Ten years ago there were many home deliveries: now there are almost none. There can be but one answer to this phenomenon, asserts the writer. People are convinced that the hospital is the safest place for a mother to have a baby. Safest for the mother, it is; but is it safest for the baby? Improvements are proposed to make hospitals safer for new-borns.

CLIFFORD, S. H. Diarrhea of the Newborn. New England J. Med. 237, 26:970 (Dec. 25), 1947.

"Easier To Read Than Skip"—If you never write anything but duty letters to your dear old mother then you may safely ignore this item. Otherwise you should know about the pains the Extension Service takes to make its educational material readable. Also, this note gives me the chance to add to hers, my boost for Flesch's "Art of Plain Talk," a book you need to read once each year.

COWING, A. G. Readable Writing. J. Am. Diet. Assn. 23, 12:1036 (Dec.), 1947.

Newly Discovered TB—Expanding diagnostic and treatment facilities for tuberculosis serve to make the shortage of nurses a bottleneck (if I may resurrect a tired word). One solution is the employment of non-professional workers to take over the chores the nurse shouldn't have to do. There are other solutions discussed here.

CHRISTENSEN, H. G. and BOWE, A. Current Trends in Tuberculosis Nursing. Pub. Health Nurs. 39, 12:590 (Dec.), 1947.

More about the Histoplasmin Monkey Wrench—Widespread pulmonary lesions caused by other agents than Tb and occurring especially in Tennessee, Kentucky, Arkansas, Missouri, Kansas, Illinois, Indiana, and Ohio complicate the problem of mass chest x-raying. Photographs are appended to show typical pictures of patients who are histoplasmin-sensitive and tuberculin-negative.

FURCOLOW, M. L., *et al.* The Roentgenographic Appearance of Persistent Pulmonary Infiltrates Associated with Sensitivity to Histoplasmin. Pub. Health Rep. 62, 49:1711 (Dec. 5), 1947.

Polio Studies—Relative epidemiologic importance of virus in stools and in the throat remains to be ascertained, say these researchers, but the fact that stools may remain infective for weeks whereas the infectious period seems usually to end a few days after onset suggests that the source is *contact* infection and not via feces.

GORDON, F. B., *et al.* Recovery of Poliomyelitis Virus from Throat During the Incubation Period. J.A.M.A. 135, 14:884 (Dec. 6), 1947.

Extra Dividends—In cancer detection clinics conducted in Maryland the prevalence rates were ten times the expected rates for men and twice the expectancy for women. This experience seems to suggest that we should have more detection centers, for one thing. Preceding this story of the detection clinics is the introductory chapter of what will become a book on the diagnosis and treatment of cancer. Don't fail to look it over.

JONES, H. W. JR., and CAMERON, W. R. Case-Finding Factors in Cancer Detection Centers. J.A.M.A. 135, 15:964 (Dec. 13), 1947.

Quote—Today we are beginning to realize that although arthritis is not

communicable as a disease, its sociologic, economic, and public health implications are fully as serious. Unquote. You shouldn't need more to be convinced that this excellent paper is for you.

MARGOLIS, H. M. Rheumatoid Arthritis. Am. J. Nurs. 47, 112:787 (Dec.), 1947.

It will Not Stop—Of interest to every administrator should be this story of a year's experience in providing home care for the chronically ill. Essential to success was the close collaboration of all the agencies and professional groups concerned.

NOTTER, L. E. Coördinating Home Care for Persons with Long-Term Illness. Pub. Health Nurs. 39, 12:602 (Dec.), 1947.

Not on Dust—Oiling floors and treating blankets with oil emulsion lowers dust content of air. From past studies good effects in preventing bacteria-caused respiratory diseases have been reported, but the spread of virus infections seems not to have been affected markedly in this investigation.

SCHECHMEISTER, I. L., and GREENSPAN, F. S. The Relation of Oil Treatment of Floors and Bedding to the Control of Respiratory Diseases among Naval Personnel. Am. J. Hyg. 46, 3:376 (Nov.), 1947.

Quotes from Immortal Bard—"What a piece of work is man, how noble in reason, how infinite in faculties. In form and moving how express and admirable, in apprehension how like a god. The beauty of the world, the paragon of animals." With tongue-in-cheek a British M.O.H. begins his discussion of psycho-somatic disease with those words.

STALLYBRASS, C. O. The Social Implications of Medico-psychological Disorders. M. Officer. 78, 20:213 (Nov. 15), 1947.

In a British San—Pregnant tuberculous patients were compared with a similar group of married tuberculous patients, who were not pregnant. There was little or no evidence that childbearing had any effect on the course of the disease, and none that surgical interference was needed.

STEWART, C. J. and SIMMONDS, F. A. H. Child-Bearing and Pulmonary Tuberculosis. Brit. M. J. 4531:726 (Nov. 8), 1947.

Lo, the Poor Indian—Probably this is of little interest to you, but the report says the Navajo Indians have practically no preventive medical services and no sanitary protection. The reservation is alleged to be a dangerous reservoir of communicable diseases (especially tuberculosis) for nearby states.

WOODS, O. T. Health among the Navajo Indians. J.A.M.A. 135, 15:981 (Dec. 13), 1947.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN FOUNDATIONS AND THEIR FIELDS. Part I (6th Survey). Edited by William B. Cherin, Ph.D. New York: Raymond Rich & William Cherin Associates, 1947. 58 pp. Price, $6.00. (4 parts)

AMERICAN MEDICAL RESEARCH. PAST AND PRESENT. Richard H. Shryock, Ph.D. New York: The Commonwealth Fund, 1947. 350 pp. Price, $2.50.

APPLIED MEDICAL BACTERIOLOGY. Max S. Marshall, Ph.D. Philadelphia: Lea & Febiger, 1947. 340 pp. Price, $4.50.

ATLAS OF BACTERIOLOGY. R. Cranston Low, M.D., and T. C. Dodds. Baltimore: Williams & Wilkins, 1947. 168 pp. 168 illus. Price, $8.50.

COMMUNICABLE DISEASE CONTROL TERRITORY OF HAWAII. Postwar Planning Committee

on Health—Public Health Committee. Honolulu: Chamber of Commerce, 1947. 78 pp.

EXPERIMENTAL AIR-BORNE INFECTION. Theodor Rosebury. Baltimore: Williams & Wilkins, 1947. 222 pp. Price, $4.00.

FOOD, NUTRITION AND HEALTH (6th ed.) E. V. McCollum, Ph.D., Sc.D. and J. Ernestine Becker, M.A. Baltimore: Johns Hopkins University, 1947. 146 pp. Price, $2.00.

FURTHER EFFECTS OF ADDED THIAMIN ON LEARNING AND OTHER PROCESSES. Ruth Flinn Harrell. New York: Teachers College, Columbia University, 1947. 102 pp. Price, $2.75.

HEALTH INSTRUCTION YEARBOOK. Edited and Compiled by Oliver E. Byrd, Ed.D., M.D. Stanford, Calif.: Stanford University Press, 1947. 325 pp. Price, $3.00.

HEALTH PRACTICE INDICES 1943–46. A Collection of Charts Showing the Range of Accomplishments in Various Fields of Community Health Service. New York: American Public Health Association, 1947. 77 pp. Free.

IES LIGHTING HANDBOOK. (THE STANDARD LIGHTING GUIDE). New York: Illuminating Engineering Society, 1947. 856 pp. Price, $7.50.

NATIONAL CONFERENCE ON PREVENTION AND CONTROL OF JUVENILE DELINQUENCY. Following pamphlets may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.:

Community Coordination. $.15
General Recommendations for State and Community Action. $.10
Juvenile Court Laws. $.15
Juvenile Court Administration. $.10
Juvenile Detention. $.15
Institutional Treatment of Delinquent Juveniles. $.20
Role of the Police in Juvenile Delinquency. $.15
Recreation for Youth. $.25
Housing, Community Development, and Juvenile Delinquency. $.15
Mental Health and Child Guidance Clinics. $.10
Youth Participation. $.10
Citizen Participation. $.15
Case Work—Group Work. $.15
Church Responsibilities. $.15
School and Teacher Responsibilities. $.15
Home Responsibility. $.15
Rural Aspects of Juvenile Delinquency. $.25
Statistics. $.15

ON THE PROBLEMS OF POLIOMYELITIS. Bertel S: Son Bertenius. Sweden: Lund, A.-B. Ph. Lindstedts Univ. Bokhandel, 1947. 212 pp.

PLANTS AND ENVIRONMENT. R. F. Daubenmire. New York: John Wiley, 1947. 424 pp. Price, $4.50.

PSYCHOTHERAPY IN CHILD GUIDANCE. Gordon Hamilton. New York: Columbia University Press, 1947. 340 pp. Price, $4.00.

PUBLIC HEALTH ADMINISTRATION IN THE UNITED STATES. Wilson G. Smillie, M.D. (3rd. ed.) New York: Macmillan Co., 1947. 637 pp. Price, $6.50.

SEXUAL BEHAVIOR IN THE HUMAN MALE. Alfred C. Kinsey, Wardell B. Pomeroy, and Clyde E. Martin. Philadelphia: Saunders, 1948. 804 pp. Price, $6.50.

TIFUS EXANTEMATICO. Dres. F. Fonseca Y Fr. Wohlwill. Barcelona-Buenos Aires: Salvat Editores, S. A., 1944. 212 pp.

TUBERCULOSIS LAWS—RULES AND REGULATIONS. (California). Compiled by Mary Graham Mack. New York: National Tuberculosis Association, 1947. 250 pp. Price, $2.00.

VITALITY AND CIVILIZATION. Griscom Morgan. Chicago: Human Events Associates, 1947. 25 pp. Price, $.25.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

CARNEGIE CORPORATION OF NEW YORK. Annual Report, 1947. 81 pp.

CITY OF MONTREAL, CANADA. Report of the Department of Health, 1945. 299 pp.

HOSPITAL COUNCIL OF GREATER NEW YORK. 9th Annual Report, 1946–1947. 21 pp.

LOS ANGELES COUNTY, CALIFORNIA. Annual Report for the Health Department, 1946–1947. 69 pp.

PUBLIC HEALTH IN A CHANGING WORLD. A Survey of Medical and Health Progress During the Period of 1917–1946 and a Report of the Jefferson County Department of Health for 1945–1946. Birmingham, Alabama, Department of Health.

STATE OF ILLINOIS. 29th Annual Report of the Department of Public Health. July 1, 1945 to June 30, 1946.

THRU THE WAR YEARS 1941–1947. Health Unit, Des Moines County, Iowa.

ASSOCIATION NEWS

76TH ANNUAL MEETING

BOSTON, MASS., NOVEMBER 8–12, 1948

Members of the Association are already asking about hotel rooms in Boston. On or about April 1, a hotel reservation application form will be mailed to every member and the Housing Bureau in Boston will operate on and after that date. The *Journal* will also quote hotel rates beginning with the April number.

ASSOCIATION COMMITTEE ON CHILD HEALTH

The officers and Section Councils of five of the Association Sections—Maternal and Child Health, School Health, Health Officers, Public Health Nursing, and Health Education—have unanimously approved a plan for an Association Committee on Child Health. This plan was formulated by the Executive Board at the Annual Meeting in Atlantic City on the basis of a report from Martha M. Eliot, M.D., President, and Hugh R. Leavell, M.D., a member of the Board, growing out of conversations with representatives of the Maternal and Child Health and School Health Sections.

The plan indicates the following purpose for the new committee:

To consider matters related to the health and medical care of children and to maternity care and to act for the American Public Health Association in its relations with national organizations and agencies, professional or nonprofessional, that are concerned with the advancement of child health, having due regard for the work of the Sections and of other committees of the Association. This would include the development of recommended standards, procedures and policies and development of relationships with such organizations as the American Academy of Pediatrics, the Federation of Obstetrical Associations, the American Medical Association, the National Education Association, the American School Health Association, and the National Congress of Parents and Teachers.

It further suggests the following duties:

1. Develop statements of principles and policies, content of program, and standards of performance in the maternal and child health field for the guidance of the Association;
2. Consider and make recommendations concerning undergraduate and graduate education for professional and technical workers in the maternal and child health field;
3. Consider research or investigations that are required to provide information on administrative, organizational and program matters necessary for the improvement of child health; and,
4. Act on matters related.

The plan recommends that funds be sought to provide the committee with a staff, including a physician competent to develop the work of the committee, clerical assistance, and such other professional consultants as may be needed, and to provide for other costs of the committee.

The following committee has been appointed by the Executive Board:

Leona Baumgartner, M.D., *Chairman*, Director, Bureau of Child Hygiene, New York City Department of Health.

Margaret Adams, R.N., Instructor in Nursing Education, Teachers College, Columbia University.

Allan M. Butler, M.D., Massachusetts General Hospital, Boston.

Richard F. Boyd, M.D., Director, Local Health Administration, Illinois State Health Department.

Edwin F. Daily, M.D., Director, Division of Health Services, U. S. Children's Bureau.

Mayhew Derryberry, Ph.D., Chief, Health Education and Training, U. S. Public Health Service.

Paul Harper, M.D., Associate Professor, Department of Public Health Administration,

Johns Hopkins School of Hygiene and Public Health.

Herbert R. Kobes, M.D., Director, Division of Services for Crippled Children, University of Illinois.

Frank Stafford, M.S., Specialist for Health Instruction, Physical Education and Athletics, U. S. Office of Education.

Frederick J. Stare, M.D., Associate Professor, Head of Department of Nutrition, Harvard School of Public Health.

Myron Wegman, M.D., Professor and Director, Department of Pediatrics, Louisiana State University School of Medicine.

J. M. Wisan, D.D.S., American Dental Association.

Kent A. Zimmerman, M.D., Consultant in Mental Health, California State Department of Public Health.

PHOTOGRAPH OF MILK SEDIMENT STANDARDS AVAILABLE

With the acceptance of the Off-Bottom Method of determining sediment in a can of milk, the need became apparent for a set of sediment standards based upon a definite weight of sediment and prepared from a recognized standard sediment mixture. The use of such standards guarantees that both the milk industry and the respective regulatory agencies will have a common reproducible standard for the grading of milk on the basis of its sediment content.

The standard sediment mixture consists of screened, oven-dried cow manure, garden soil, and charcoal, mixed in definite proportions. Measured quantities of the sediment are added to a pint of milk before filtration through sediment discs. The photograph represents the amount of sediment remaining on the discs after filtration of pint samples containing 0.0, 0.2, 0.5, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 12.0, and 14.0 mg. of the standard mixture.

From the photograph, both the industry and the respective regulatory agencies may determine the limit in terms of milligrams of sediment beyond which milk will not be acceptable. Acceptable limits may be established both for producer deliveries and for retail deliveries. Either actual discs or the photograph may be used in the field or in the laboratory for the purpose of making comparisons. The use of a photograph assures a high degree of uniformity.

Photographs of the discs are available at $1.50 each from the American Public Health Association, 1790 Broadway, New York 19, N. Y. In order to protect the photographs from damage and fading, they are enclosed in acetate and manila envelopes. Directions for the preparation and use of the standards appear in the forthcoming ninth edition of *Standard Methods for the Examination of Dairy Products*.

NOTICE TO BIOLOGISTS INTERESTED IN PUBLIC HEALTH

Interest in the formation of a Public Health Biology Section of the American Public Health Association has been expressed by individuals whose major fields of interest and activity involve the application of biological knowledge and techniques to public health practice. These fields include medical or public health entomology, parasitology, mamalogy, limnology, ichthyology, malacology, herpetology, mycology, allergenic botany, and doubtless other related specialties. Existing Association Sections—mainly Laboratory, Epidemiology, and Engineering—provide proper affiliation for certain of the A.P.H.A. biologists; it is not proposed that any of these currently satisfactory relations be disturbed. Other biologists with investigational or operational concerns find themselves in the Unaffiliated Section for lack of an Association category indicative of their professional interest. It is believed that some public health biologists have failed to join the American Public Health Association because there appears to be no specific place for them within the existing compartmentalization of the society.

A petition for the formation of such a Section in the Southern Branch of the A.P.H.A. has already been sent to the Governing Council of that organization. It seems desirable, however, to measure interest in the activation of a comparable Section on a national basis to provide the opportunity at the annual meetings of the A.P.H.A. for the presentation of more detailed papers and technical discussion of mutual problems in public health biology than might be undertaken in the general sessions of the Association.

As a preliminary step in this direction, it is requested that those interested in the formation of a Public Health Biology Section in the American Public Health Association indicate their approval of such a plan and their willingness to coöperate in its activation by writing to Justin M. Andrews, Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Athemas Bellerive, M.D., 311 Glenn Ave., Ann Arbor, Mich., Director, Malaria Control Section, Public Health Service of Haiti

Joseph H. Gamet, M.D., Court House, Janesville, Wis., Medical Director, Rock County Sanitary Unit

Seth M. Kerron, M.D., 1949 Main St., Klamath Falls, Ore., Director, Klamath County Health Dept.

Norbert A. Lasher, D.V.M., Station Hospital, Randolph Field, Tex., Medical Inspector, U. S. Army

Albert M. Richmond, M.D., M.P.H., Hdq. 3rd Army, Medical Section, Atlanta 3, Ga., Chief of Preventive Medicine and Commanding Officer, 3rd Army Area Laboratory.

Harry P. Ross, M.D., 220 South 19th St., Richmond, Ind., City Health Commissioner

Laboratory Section

Alice J. Arnold, 191 N. El Molino Ave., Pasadena, Calif., Bacteriologist, City Health Dept.

Frank R. Bozza, Ph.G., 56 Sinawoy Road, Cos Cob, Conn., Bacteriologist, Greenwich Health Dept.

H. Gilbert Crecelius, Ph.D., 1010 Orleans, Topeka, Kan., Asst. Director, Division of Public Health Laboratories, State Board of Health

Carroll E. Heist, M.S., Dept. of Bact., Univ. of Illinois, Urbana, Ill., Student

Nicholas A. Milone, State Dept. of Health, 35 Market St., Poughkeepsie, N. Y. District Sanitarian

Lucille K. Schulze, 4954 West Pine Blvd., St. Louis 8, Mo., Senior Asst. Bacteriologist, St. Louis Health Division

Guydell L. Schwartz, M.A., 618 Elmwood Ave., Joliet, Ill., Chief Laboratory Technician, Hilo Memorial Hospital, Hilo, Hawaii

Vital Statistics Section

Robert Lewis, 228 MacArthur Blvd., Oakland 10, Calif., Student of Public Health Statistics, Univ. of California.

Eleanor Poland, Ph.D., 2000 F. St., N.W., Washington, D. C., Special Consultant, U. S. Public Health Service

Matthew Taback, A.M., State Dept. of Health, 28 Howard St., Albany 7, N. Y., Senior Statistician, Division of Tuberculosis

Engineering Section

Robert V. Barnes, M.S.E., State Health Dept., 519 Dexter Ave., Montgomery, Ala., Principal Sanitary and Public Health Engineer

Walter M. Basford, M.A., Station Hospital, Randolph Field, Tex., Post Sanitary Engineer

Jose Capocchi, 615 Monroe, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Philip Dreifuss, Box 2305 University Station, Gainesville, Fla., Student, Univ. of Florida

Hoke J. Duncan, P. O. Box 374, Dalton, Ga., Sanitarian, Dalton-Whitfield County Health Dept.

Warren R. Lawson, M.P.H., State Health Dept., University Campus, Minneapolis 14, Minn., Asst. Public Health Engineer

Lee J. Schreibeis, 1705 Jancey St., Pittsburgh, Pa., Student, Univ. of Michigan School of Public Health

Henry L. Schuldener, 423 W. 126th St., New York 27, N. Y., President and Technical Director, Water Service Laboratories, Inc.

Robert B. White, C.E., 222 Tyler House, East Quad, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Industrial Hygiene Section

Marcelo Ernesto Auguste, M.D., 203 North Ingalls St., Ann Arbor, Mich., Physician, Medical Dept., Standard Oil Co. (Argentina)

P. Cartier, M.D., D.P.H., Thetford Industrial Clinic, Inc., Thetford Mines, Que., Canada, Medical Director

Comdr. Clark P. Jeffers, M.C., USN, Staff, Comdr. in Chief, Pacific Fleet, FPO, San Francisco, Calif., Medical Officer for Preventive Medicine and Asst. Fleet Surgeon

Edwin M. Joseph, 1240 Ontario St., Cleveland, Ohio, General Manager, "Occupational Hazards"

Jacques C. Presner, M.D., C.M., 30 West 54th St., New York 19, N. Y., Visiting Physician, City Dept. of Welfare

Capt. Ivan C. Tiholiz, M.C., 19D McCann St., Edgewood, Md., Industrial Toxicologist, Army Industrial Hygiene Laboratory

Food and Nutrition Section

Cefairl W. Carlson, 623 N. Humphrey, Oak Park, Ill., Sanitarian, City of Oak Park

Dale D. Chow, D.D.S., 769 Jackson St., San Francisco, Calif., Instructor in Anatomy, Univ. of California College of Dentistry

Penelope S. Easton, West Lodge Dorm. 2, Ypsilanti, Mich., Student, Univ. of Michigan School of Public Health

Luther A. Kohr, 1265 Broadway, Rm. 806, New York 1, N. Y., Exec. Secy., American Association of Medical Milk Commissions, Inc.

Milton E. Lindemann, 230 South Park St., Fairmont, Minn., Sanitarian, Fairmont Canning Co.

Elsie W. Russell, 1824 Geddes Ave., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Maternal and Child Health Section

Harold M. Goldstein, M.D., 1282 East 23 St., Brooklyn, N. Y., Resident Pediatrician, Mount Sinai Hospital

M. Alexander Novey, M.D., City Health Dept., Rm. 700, Municipal Bldg., Baltimore 2, Md., Director, Bureau of Maternity and Child Hygiene

Deogracias J. Tablan, M.D., 1930 Washtenaw, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Antonio H. V. Valente, 1312 Olivia St., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Frank W. Van Dyke, 47 Melrose Ave., Albany, N. Y., Consultant on Administrative Methods, U. S. Children's Bureau

Public Health Education Section

Edna Y. Bond, 15 East Kinney St., Newark 2, N. J., Health Education Director, New Jersey Tuberculosis League

Mary T. Connelly, 10 Chestnut St., Quincy, Mass., Health Educator, Norfolk County Health Assn.

Enoch O. Dugas, 431 S. Broadway, Tyler, Tex., State Representative, National Foundation for Infantile Paralysis, Inc.

John K. Ellis, West Lodge Dorm. 19, Rm. 85, Ypsilanti, Mich., Student, Univ. of Michigan School of Public Health

Elmer L. Guenther, 1535 Summit Ave., Seattle 22, Wash., Secretary, Health Division, Council of Social Agencies

Judson Hardy, 214 Monroe, Rockville, Md., Chief, Office of Technical Services, Venereal Disease Division, U. S. Public Health Service

Dorothy Y. Kirk, M.P.H., R.N., 29 Wood St., Hamden, Conn., Nurse Supervisor and Assistant in Administration, Bureau of Venereal Diseases, New Haven Health Dept.

Karl P. Meister, D.D., 740 Rush St., Rm. 510, Chicago 11, Ill., Exec. Secy. Board of Hospitals and Homes of Methodist Church

Helen de Ramus Mitchell, 1278 Grant Ave., Bronx 56, N. Y., Asst. in Health Education, Westchester-Pelham Health Center

Lily E. Orth, 12 South Oxford St., Brooklyn, N. Y., Supervisor, Out-Patient Service, Cumberland Hospital

Elizabeth T. Pearson, County Court House, El Centro, Calif., Exec. Secy., Imperial County Tuberculosis and Health Assn.

Ellaleen C. Williams, R.N., M.S., 458 H. St., S.W., Washington 4, D. C., Psychiatric Social Worker, St. Elizabeths Hospital

Public Health Nursing Section

Margaret E. Bernard, Box 261, Garden City, N. Y., Unemployed (formerly Public Health Nurse, State of California)

Laura M. Brooks, R.N., Fair St., Carmel, N. Y., Public Health Nurse, District Nursing Assn.

Madolin M. Dickinson, R.N., B.S., 929 Forest, Denver, Colo., Public Health Nurse, Denver Tuberculosis Society

Dorothy G. Erickson, 4884 MacArthur Blvd., N. W., Washington 7, D. C., Asst. Nurse Officer, U. S. Public Health Service

Mary E. Lewis, R.N., 720 Church St., Trenton, Tenn., Acting Senior Public Health Nurse, Gibson County Health Dept.

Erna E. Maas, R.N., 52 Harrison Ave., Roseland, N. J., Public Health Nurse, Bloomfield Health Dept.

Rosemary M. MacIsaacs, R.N., 97 Border St., Cohasset, Mass., Unemployed (formerly Public Health Nurse, Social Service League)

Dorothea F. Miller, R.N., B.S., Rt. 3, Box 319A, Bremerton, Wash., Public Health Nurse, Kitsap County Health Dept.

Clara Rechtschaffer, R.N., B.S., 310 West 97 St., New York, N. Y., Field Supervising Nurse, City Health Dept.

Reva Rubin, M.N., Frontier Nursing Service, Brutus, Ky., Resident District Nurse and Nurse Midwife

Marjorie E. Schlotterbeck, 47 Beaver St., New York 4, N. Y., Nursing Consultant, American Cancer Society

Mabel A. Wandelt, 1110 Calvert, Detroit 2, Mich., Student, Univ. of Michigan School of Public Health

Epidemiology Section

Byron D. Casteel, M.D., 1840 Monroe Street, N. W., Washington 10, D. C., Officer-in-Charge, Communicable Disease Control Section, Bureau of Medicine and Surgery, Navy Dept.

Alfred E. Fischer, M.D., 73 East 90 St., New York 28, N. Y., Pediatrician

Prof. Gunnar A. Fischer, Statens Institut for Folkhalsan, Tomteboda, Sweden, Professor of Hygiene, Royal Carolinian Institute

O. Elliott Ursin, M.D., 55 Shattuck St., Boston, Mass., Student, Harvard School of Public Health

School Health Section

Sidney Blumenthal, M.D., 1097 Park Ave., New York, N. Y., Pediatrician

H. Veazie Markham, M.D., 6095 Cerritos Ave., Long Beach 5, Calif., School Physician, Redondo Union High School and Torrance City Schools

Margaret H. Moore, M.D., 584 Copley Road, Akron, Ohio, School Physician, Summit County Health Dept.

Dental Health Section

Sylvia E. Zappler, D.D.S., M.D., 33 Davis Ave., White Plains, N. Y., Dentist

Unaffiliated

Bennett F. Avery, M.D., M.S., American Embassy, Tehran, Iran, Advisor to Imperial Iranian Ministry of Health

L. Whittington Gorham, M.D., Albany Hospital, New Scotland Ave., Albany 1, N. Y., Chairman, New York State Public Health Council

Joseph F. Poges, Box 230, Springfield College, Springfield, Mass., Student in Health Education

Donald B. Seeley, M.S., Flint Laboratory, Univ. of Massachusetts, Amherst, Mass., Student

DECEASED MEMBERS

W. M. Brien, M. D., Orange N. J., Elected Member 1935, Health Officers Section

Hyman M. Charm, Sc.D., Bronx, N. Y., Elected Member 1937, Laboratory Section

Mrs. Sigrid M. Dudley, Marinette, Wis., Elected Member 1930, School Health Section

Joseph P. Franklin, M.D., Cumberland, Md., Elected Member 1946, Health Officers Section

Sara Kerr, Buffalo, N. Y., Elected Member 1935, Vital Statistics Section

Kingsley Roberts, M.D., New York, N. Y., Elected Member 1939, Unaffiliated

Wellington P. Shahan, Springfield, Ill., Elected Member 1941, Public Health Education Section

Herbert F. True, M.D., Sacramento, Calif., Elected Member 1926, Elected Fellow 1930, Health Officers Section

Kenneth M. Wheeler, Ph.D., Hartford, Conn., Elected Member 1940, Elected Fellow 1943, Laboratory Section

A.P.H.A. membership application blank on page XXXI

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

(Supplemental to list in January Journal)

Positions Available

Health Educator, graduate of a university of recognized standing with courses in the biologic and social sciences, psychology and education. Experience in writing desirable, experience in the field of health education required. Salary $4,047. Large city. Midwest. Write **Box H–548.**

Health Officer for county health department, near Chicago, suburban towns and good farming community. Department operating efficiently. Salary $6,000 to $7,200 depending on training and experience. Apply to Dr. Arthur S. Webb, Professional Arts Building, Glen Ellyn, Ill.

Food Microanalyst, bacteriologist for staff of long established canning industry laboratory in East. Training and experience in food microanalysis and bacteriology required. Opportunity for permanent position in charge of project on microanalysis of foods. Write National Canners Association, Research Laboratories, 1739 H Street, N. W., Washington 6, D. C.

Assistant Director, Division State Public Health Laboratories, in direct charge of laboratory in Bismarck. Requirements under Merit System: Master's Degree Bacteriology and/or Serology, 4 years' practical experience; or, 3 years' experience, 1 year in public health school. Salary: $325–$400, depending on qualifications. Write: Director, Public Health Laboratory, Box C, University Station, Grand Forks, N. D.

Director of Nurses and Supervisor of Nurses; city-county health department; generalized program; office in industrial city and county of 165,000; salaries $3,000-$3,780 and $2,520–$3,180 respectively. Substantial car allowances for both. Positions available from December 1. For further information write Paul A. Lundquist, M.D., M.P.H., Director of Health, Kansas City-Wyandotte County Health Department, 619 Ann Avenue, Kansas City, Kan.

Several Health Officers in Texas. Salary $6,000 a year plus $50 per month travel allowance. The Public Health Program operates under a Merit System with the usual vacations, sick leave, and retirement benefits under certain conditions. For further information write to: Dr. George W. Cox, State Health Officer, Austin, Tex.

Public Health Nurses for family health program having special emphasis on prenatal patients and children to school age. Nurse must qualify for Illinois registration. Initial salary $2,430; 5 day week; 1 month's vacation annually; on-the-job transportation allowance; outdoor uniform furnished; group insurance coverage; retirement plan in operation. Salary consideration for previous public health education and/or experience. Write Superintendent, Infant Welfare Society of Chicago, 203 North Wabash Avenue, Chicago 1, Ill.

Qualified Public Health Nurse, Director for family health service in Mid-West city. Experience in maternal and child health field necessary. Salary open. Write **Box N–419.** Employment Service. A.P.H.A.

Bacteriologist and Serologist (assistant). College graduate. Salary range $210 to $260. Retirement benefits, vacation, sick leave, permanency. Apply to Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Bacteriologist: Male, Ph.D. Meticulous worker, stable, who can manage a department of a vaccine producing laboratory connected with a large Mid-West medical school. Salary $4,500 to start. Apply **Box Y–2.** Employment Service. A.P.H.A.

Health Officer for eastern city. Applicant must have graduate degree in Public Health Administration. State educational background, experience and salary expected. Write **Box U–4.** Employment Service. A.P.H.A.

Health Officer in one of the most desirable locations in Montana; population 30,000; salary $6,000 to $7,000, depending upon training and experience. Write Box A-1. Employment Service. A.P.H.A.

Executive Director for community health agency in suburban Philadelphia. Professional staff of twelve nurses and dentist. Generalized nursing service affiliated with local Boards of Health and Schools; Dental Clinic; Child Health Centers; Practical Nurse Registry. Nurse with academic degree plus supervisory and administrative experience in official and nonofficial public health nursing. Retirement plan, one month vacation, 5 day 39½ hour week, sick leave. Salary open. Write Mr. H. H. Perry, President, Community Health and Civic Association, 25 East Athens Avenue, Ardmore, Pa.

Public Health Nurse and a Physiotherapist. Metropolitan Area of Washington, D. C. Excellent working relations. Good salary. Apply to Mrs. Sarah Brooks, Director of Nursing Bureau, Arlington Health Department, 1800 N. Edison Street, Arlington, Va.

Bacteriological Technician to assist in Bacteriology Department of Research Division of large pharmaceutical and biological firm. College graduate and at least one year of experience required. Experience in immunology or chemotherapy desirable. $55 per week to start. Regular increases. Paid vacation. Five day week. Write **Box A-2,** Employment Service, A.P.H.A.

Public Health Nursing Field Supervisor; B.S. degree with major in Public Health Nursing and theory and experience in supervision required. Salary: minimum $3,000, higher, depending upon qualifications. Interesting and growing program. Write: Director, Public Health Nursing Association, Des Moines, Iowa.

Qualified Bacteriologist, Serologists and Sanitarians wanted for positions in New Mexico Department of Public Health. Permanent tenure, vacations and sick leave with pay. For application blanks and information write Merit System Supervisor, Box 939, Santa Fe, N. M.

Sanitarian for metropolitan county 300,000 population to assist in generalized sanitation program. Area includes rural as well as urban sanitation problems; offers excellent opportunity for activity in all fields of environmental health. Experience in general sanitation activities required. Salary $3,315 to $3,795. Retirement plan, liberal vacation allowance, sick leave, 5 day week. Mileage allowance 7¢. Must furnish own car. Write Wayne County Health Department, Eloise, Mich.

Public Health Nurses needed in Nevada. Permanent positions in rural counties and local county health unit.

Junior Public Health Nurses: (salary range $2,160–$2,640 annually) minimum of 6 months postgraduate public health nursing training.

Senior Public Health Nurse (salary range $2,340–$2,940 annually). One academic year of postgraduate training in public health nursing plus satisfactory experience in official agency. Mileage allowance 7½¢, if nurse owns car.

Supervisory Nurse for 6–7 counties (salary range $2,580–$3,300 annually plus travel allowance). Degree plus 1 year postgraduate training in public health nursing and two years' experience. All positions subject to Merit System examination. Write: Division Public Health Nursing, Nevada State Department of Health, 12 Fordonia Building, Reno, Nevada, for full details.

School Physician for combined position city health officer and Director of school health department. Community in Indiana with population of approximately 70,000. Salary about $8,000. Write **Box X-2,** Employment Service, A.P.H.A.

Public Health Supervisor, salary $3,300. Four staff nurses, salary $2,460, for newly established health unit in east-central Illinois. Staff will also consist of one sanitarian, two clerks, one clerk-stenographer, besides the director. Opportunity to help formulate new public health program for entire staff personnel. Write Director of Health, P. O. Box 175, Dewitt-Piatt County Health Unit, Clinton, Ill.

School Physician for Teachers College. Population 1,500 (near Chicago). Complete charge of clinic and work with health coördinator and health council in improving school health program. Salary open. Write to President Karl L. Adams, Northern Illinois State Teachers College, DeKalb, Ill.

Director of Health for new combined city-county Health Department in Indiana. Challenging opportunity to reorganize and increase health program of considerable scope for capable and well trained man. Salary possibly up to $10,000. Write **Box A-4.** Employment Service. A.P.H.A,

Research Microbiologist, as Chief of Division of Research and Investigations of State Health Department, N.E. Must be well grounded in bacteriology, immu-

nology, and laboratory techniques of virus diseases; ability to encourage research in other divisions. Salary $4,620–5,820 plus $180 cost of living increase. **Annual increments** of $240 based on achievement. Write **Box A-5.** Employment Service. A.P.H.A.

Public Health Commissioner in Tuscarawas County, New Philadelphia, Ohio. Must have degree in public health. To serve in a county with a population of approximately 40,000. Beginning salary $6,000 or more. Write **Box A-3.** Employment Service. A.P.H.A.

Several Vacancies Nursing Division; also bacteriologist. Merit System. New salary ranges. Submit credentials and recommendations with first communication to: Floyd R. Town, M.D., Director, Bremerton and Kitsap County Department of Public Health, Bremerton, Wash.

Public Health Nurse Position. Generalized public health nursing. Civil Service requirements: one year of public health nursing at approved university; experience preferred. Salary range $2,400 to $2,880—$120 increase per year. Three weeks' vacation, sick leave 12 days per year, accumulative. Personal car; mileage 6¢ for travel on duty. Write to Adele Didricksen, R.N., Director Public Health Nursing, Ulster County Health Department, 61 Albany Avenue, Kingston, N. Y.

Bacteriologist—$3,360. Three years' experience in clinical or laboratory diagnosis. Master's or Doctor's degree. Complete charge of Public Health laboratory, town of approximately 10,000. Apply to Bureau of Personnel, State Capitol, Madison 2, Wis.

Public Health Nursing Supervisor for county unit in process of organization, degree and experience desirable. Salary $3,000 and travel. Write to: Montgomery County Health Department, Hillsboro, Ill.

PUBLIC HEALTH OPPORTUNITIES IN INDIANA

1. Medical Director for branch office, Indiana State Board of Health. Car furnished; salary $5,400 to $6,600 per year, depending on qualifications.

2. Health Educator for branch office, Indiana State Board of Health. Salary $225–375, depending on training and experience.

3. Assistant Sanitary Engineers for branch offices and central office, Indiana State Board of Health, salary $250–350 depending on training and experience.

4. Public Health Nursing Consultant and Assistant Consultant, Indiana State Board of Health, salary $225–375. Degree with major in public health nursing and experience required. Submit training and experience or inquiries to L. E. Burney, M.D., State Health Commissioner, Indianapolis, Ind.

5. Health Officer for City of Gary, Ind. Salary $7,500; travel $600. Submit training and experience or inquiries to T. J. Senese, M.D., 504 Broadway, Gary, Ind.

POSITIONS WANTED

Licensed Veterinarian: Public Health and disease control experience in United States and abroad desires position in public health or industry. Write **Box V-308,** Employment Service, A.P.H.A.

Physician, woman, considerable clinical and administrative experience in child health work. Last 3½ years: senior physician, hospital school for crippled children including responsibilities for rehabilitation, X-ray and laboratory work, Interested in openings in Maternal and Child Health and crippled children's work, schools, industry. Write **Box C-421,** Employment Service, A.P.H.A.

Industrial Hygienist, 6 years' experience in industrial hygiene work in state and city health departments, 2 years as industrial chemist in industry. Present position: Assistant Director of Industrial Hygiene in official agency. Master's degree in sanitary engineering (2 years graduate work). Male 32, married, veteran. Desires position in governmental agency or industry. Write **Box I H-463,** Employment Service, A.P.H.A.

Physician, specialized in tuberculosis work. Thirteen years' clinical and administrative tuberculosis experience in public health agencies and institutions.

Currently employed but seeking position offering wide professional scope and responsibility. Male 40 years old, married. Write **Box C-425.**

Dentist: D.D.S., M.S.D. (Major Pedodontia) M.P.H., wishes full-time teaching position in his specialties or institutional employment. Opportunity for employment abroad is considered. Write **Box D-22,** Employment Service, A.P.H.A.

Non-medical Administrator, male, age 34, experienced in community organization, program development, public relations; presently employed as director of a state rehabilitation and welfare agency. Interested in position as executive secretary in voluntary or official health or welfare agency, or as director of an industrial welfare program. Prefer the West Coast. Write **Box M-515,** Employment Service, A.P.H.A.

Public Health Engineer and Bacteriologist, B.S. and M.P.H. Degrees from prominent eastern universities. Five years' experience includes work with private agency, state health department, and U. S. Army. Seeks position with private industry or official agency preferably in northeast. Write **Box E-524,** Employment Service, A.P.H.A.

Senior Serologist seeks position in southern California; 15 years' experience including 4 years as laboratory officer. Major Army United States. Write **Box L-1.** Employment Service. A.P.H.A.

Veterinarian with training in bacteriology, organic chemistry, and pathology; experience in public health work as a veterinary inspector for large Midwestern city; experience in clinical laboratory procedures: desires position in or outside United States requiring initiative and diligence. Wrte **Box V-1.** Employment Service. A.P.H.A.

Position in School Health Education or public health education wanted by woman with many years' experience in teaching and community organization in public health. Master's degree in public health. East or Middle West preferred. Write **Box H-E-1.** Employment Service. A.P.H.A.

Biological and Physical Chemist available for research, control, teaching. Extensive experience research, industrial development and control on pharmaceuticals, biologicals, bio-assays, also expert in animal surgery. Original analytical and physical-chemical methods. Former University professor, 60 publications; many in medical research; books. Executive ability. Age 35, married, children. Seeks responsible position Hospital Laboratories or Educational Institution, New York Metropolitan area preferred. **Box L-2.** Employment Service. A.P.H.A.

Sanitary Engineer, A.B., M.S., C.E., 3 years' experience in Public Health Engineering with Federal, State, and local agencies. Army experience in water supply in the Pacific. Desires position in public health engineering. Write **Box E-1.** Employment Service. A.P.H.A.

Health Educator, B.S. in Education, New York University, M.P.H., Yale University Department of Public Health. Experienced in community organization with City Health Department; Instructor of Health Education in University. Interested in Health Education in the community or as School Health Coördinator. Write **Box H.E.-2.** Employment Service. A.P.H.A.

Graduate Veterinarian with undergraduate and graduate work in dairy technology, experienced in both fields, desires position as sanitarian in a public health capacity or related work; suggestions solicited. Write **Box V-2.** Employment Service. A.P.H.A.

Advertisement

Opportunities Available

WANTED—(a) Health educator to serve as consultant to educators in state health department; Master's degree in public health and three years' experience required; $4,000–$4,800. (b) Graduate engineer with major in sanitary or public health engineering; to join staff of large industrial company having operations in Latin America; duties consist of directing sanitary program in two or three districts; work of non-routine nature. (c) Public health engineer; municipal health department; Rocky Mountain state. (d) Sanitary engineer to direct department serving population of 7,000,000; experience in water and malarial control required; M.A. degree and public health background essential; South America. (e) Public health statistician and, also, health educator; county department of health; southern California. (f) Health educator; city health department; university medical center, Middle West; around $4,000. **PH2-1**. Please write to Berneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

WANTED—(a) Public health officer; Korea; $6,000, traveling expenses. (b) Public health officer; degree in public health and experience in rural health desirable; administrative position; headquarters in one of the leading cities of South America; $7,200. (c) Public health officer to administer program of two counties; combined population 50,000, principally agricultural in nature; well staffed department; Middle West. (d) Student health physician to direct department, eastern university. (e) Medical director and administrator, health service; duties consist of directing health program, serving as consultant and adviser to other departments such as nursing, nutrition, and safety service; $6,108–$7,968; university medical center of Middle West. (f) Public health physician experienced in administration for assignment in Greece. (g) Student health physician, man or woman; faculty rank of assistant professor; Pacific Coast. **PH2-2**. Please write to Berneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

WANTED—(a) Advisory nurse for generalized program; duties consist of supervising local agencies throughout state, $3,600–4,300. (b) Public health nurse faculty members, interested in university teaching; ranks: assistant professorships; 10 month year; $4,000–$5,000. (c) Public health supervisors and staff nurses for positions in South America; knowledge of Spanish or Portuguese desirable. (d) Pediatric and orthopedic nursing consultants; state crippled children's department; program being reorganized; considerable traveling. (e) Public health nurse for administrative position in Korea; $5,000, traveling expenses. (f) Outpatient supervisor; teaching clinic averaging 100,000 visits annually, affiliated with medical school and hospital; $3,000–$5,000; East. (g) Public health supervisor to direct generalized public health nursing and school health program; should be qualified to develop service; ample assistance; town of 85,000; minimum $3,600–$4,000. California. **PH2-3**. Please write to Berneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

PUBLIC HEALTH NURSE is available for administrative position; B.S. in public health nursing; Columbia University; M.A. degree in health education; in addition to several years' successful teaching experience, has served for five years in administrative capacity with state department of health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

SANITARIAN; B.S. degree in Civil Engineering; six years, maintenance engineer with large institution; seven years, sanitary engineer where assignments have included insect control and general environmental sanitation; for further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

HEALTH EDUCATOR; B.S., M.A. degrees, eastern universities; several years, director of physical education in public schools; four years, health educator, nationally known organization; three years, health educator in industry; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

INDUSTRIAL HYGIENIST; Ph.D. degree; several years, instructor of industrial hygiene and bacteriology, graduate school of eastern university; past two years, industrial hygienist of large industrial company; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

PUBLIC HEALTH PHYSICIAN seeks directorship; medical degree, eastern university; M.P.H. Johns Hopkins; 17 years' experience in public health field; during the war held important assignment abroad; now director of health, city of 100,000; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

WHERE WE ARE ON FOOD

The Food and Nutrition Board of the National Research Council, believing it had an obligation to help the people of the United States understand the world food situation, in November, 1947, prepared what it considered dependable conclusions based on facts available. These have been published in an 11 page mimeographed statement summarized below.

The recovery of the food situation in Europe has been slowed because of soil depletion, lack of fertilizer, due primarily to lack of coal for nitrate plants, which in turn is due in part to lack of adequate food to sustain productive capacity among coal miners, and in part to loss of livestock and consequent depletion of natural manure fertilizer; to the extreme cold of last winter which froze much winter wheat, and to the drought of last summer which resulted in a poor cereal crop and reduced pasturage. At the moment, lack of feed is sending light weight animals to market and thus temporarily providing more meat but making for severe shortage both in meat and breeding animals later. For another 2 or 3 years, Europe must rely chiefly on food rather than feed crops to sustain its population.

As to the disputed question of whether there is underfeeding, malnutrition or starvation in European countries, the report divides the problem into four groups: the well-to-do who can usually supplement rationed foods with unrationed, and thus have maintained good nutritional status; working classes in the cities whose diets have been good enough to keep most of them in good health but without enough calories to enable them to perform the full quota of the heavier kinds of work, thus giving the uninitiated observer the impression that they lack ambition rather than nourishment, especially if the observer does not also see the evidence of underfeeding in the workers' growing children; the farm population who are generally better fed than urban dwellers, except in areas of extreme soil depletion, loss of equipment, or displacement of families, conditions probably most severe in Greece, Italy, and Poland; and low income urban groups among whom many families have been underfed ever since the war and often even before the war because there is no breadwinner, their income is insufficient to buy their rations or the rationing system has broken down and they are unable to buy food in the black market. This group may be as high as a third of the families in some cities and among them there are not only evidences of underfeeding but often high mortality rates.

The report discusses also the ability and the responsibility of the United States in the situation. Europe must cut down its use of breadstuffs 75 grams or 3 slices of bread daily unless cereal imports can be increased by 280,000 bushels. Such a cut would be serious in countries where meats, oils, fats, dairy products, and eggs are far below pre-war levels.

The United States can save wheat and other cereals substantially only by reducing amounts fed to livestock and poultry. Meat is the most expensive form of calorie and protein production. An average acre of wheat, if consumed as bread, will provide 6 times as many calories as if fed to poultry and consumed as eggs, 8 times as many as if fed to broilers, and 19 times as many as if fed to beef cattle to fatten them after they leave the ranges. The most

efficient livestock use of cereals is as supplementary feeding of dairy cows, all of the milk of which is used as human food.

But our increased consumption of food is due almost entirely to increased use of meat rather than increase in calories and our livestock production is on the increase. Only a small reduction in the average per capita consumption by using food other than livestock products would make available 200 million more bushels of wheat for Europe than what has been planned. Americans can use more cereals, more potatoes, more corn and oats, and more fruit and vegetables, the canned and dried stocks of which are plentiful.

The report then discusses the various alternatives by which wheat can be kept from livestock. It points out the evil effects on low income families if rationing is carried out only by letting prices rise. Such a system must be supplemented by school feeding, milk distribution, stamp plan for relief families, and others. Another alternative is to have both direct rationing and price control.

The report takes no stand on the various alternatives for achieving desired results, but it is clear that we must help feed Europe for several years to come and that steps should be taken to increase production and to provide storage in good crop years to offset poor years. The writers do not see an over-supply of food for many years to come, though there may be economic surpluses due to maldistribution.

The full report is apparently available from the National Research Council, 2101 Constitution Avenue, N. W., Washington, D. C.

U. S. DELEGATION TO INTERIM COMMISSION, WHO

H. Van Zile Hyde, M.D., Assistant Chief of Health, U. S. Department of State, was chairman of the U. S. Delegation to the fifth session of the Interim Commission, World Health Organization. This met in Geneva for three weeks beginning January 16. Other members of the delegation were Martha M. Eliot, M.D., President of the American Public Health Association and Associate Director of the U. S. Children's Bureau, Morton Kramer, M.D., of the U. S. Public Health Service, and John Tomlinson of the State Department.

MEETING OF STATE AND TERRITORIAL HEALTH OFFICERS ASSOCIATION

At its December Conference with the Surgeon General in Washington, the State and Territorial Health Officers Association elected the following officers for the coming year:

President—Vlado A. Getting, M.D., Boston, Mass.
Vice-President—Roy L. Cleere, M.D., Denver, Colo.
Secretary-Treasurer—L. E. Burney, M.D., Indianapolis, Ind.
Board Members—F. C. Beelman, M.D., and P. E. Blackerby, M.D.

This conference passed a number of resolutions, one of which has to do with proposed legislation for federal funds specifically earmarked for the development of local full-time health departments. A special committee to study a proposed bill "approved the general principle in the proposed bill . . . and referred it back to the Association as a whole for discussion with recommendations that the general policy included in the bill be accepted by the Association."

Other resolutions favored Surgeon General Parran's plan for federal subsidies to medical students as a means of increasing the supply of physicians; several additional health programs by states in special fields such as dental caries, rabies, leprosy, cancer, and chronic disease; support of the school lunch program; and establishment of a

public health program in Alaska to combat the dangerous health conditions recently found in a survey made at the request of the Department of the Interior by a team representing the American Medical Association.

INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS

The International Association of Milk and Food Sanitarians, Inc., is the name of the former International Association of Milk Sanitarians, Inc., which was founded in 1911. The objectives under the enlarged scope comprise milk and general dairy products sanitation and quality as heretofore, and, additionally, general food sanitation in its production, processing, and distribution, and in restaurant operation from the standpoint of cleanliness, safety, and quality of food and equipment.

The newly elected officers are:

President—W. D. Tiedeman
First Vice President—A. W. Fuchs
Second Vice President—M. R. Fisher
Third Vice President—K. G. Weckel
Secretary-Treasurer—J. H. Shrader

AMERICAN FOUNDATION FOR HIGH BLOOD PRESSURE

The February, 1947, *Journal* (page 243) announced the establishment of the American Foundation for High Blood Pressure. This agency is now a year old, has completed its slate of officers and trustees and medical advisory council, and has begun its campaign for membership and other sources of revenue.

Its program includes financing medical research to discover the cause and cure of various circulatory diseases.

The chairman of its medical advisory council is Irvine H. Page, M.D. of the Cleveland Clinic, and includes 30 other physicians from medical schools, hospitals, and research laboratories throughout the country.

An individual may become a member of the Foundation by contributing as little as $5 annually. The Foundation is non-profit and contributions are tax-deductible. Its headquarters are located at 705 Marion Building, Cleveland 13.

INTERNATIONAL BIOMETRIC SOCIETY

At the first International Biometric Conference in Woods Hole, Mass., in September, the Biometric Society was formed " for the advancement of quantitative biological science through the development of quantitative theories and the application, development, and dissemination of effective mathematical and statistical techniques." The Conference, which organized the society, was attended by approximately 100 biologists, statisticians, and mathematicians, who elected R. A. Fisher of England as President, and C. I. Bliss, Lecturer in Biometry at Yale University, Secretary. Among other members of the society's Governing Council are Edwin B. Wilson, Professor Emeritus of Vital Statistics at the Harvard School of Public Health, and Marinus G. Neurdenberg, M.D., D.P.H., Health Officer and Chief of Statistics of Amsterdam, Holland, both of whom are members of the A.P.H.A.

The proceedings of the Conference will be published in *Biometrics*, the publication of the Biometrics Section of the American Statistical Association. Further information can be obtained from C. I. Bliss, Secretary, Box 1106, New Haven, Conn.

SHELTERED WORK FOR CARDIACS

The Altro Work Shop in New York, operated by the Committee for the Care of the Jewish Tuberculous, has been providing sheltered employment as a step in the rehabilitation of tuberculous patients since 1915. Recently, as a result of requests over a period of years, it has begun a two year experiment in sheltered employment for cardiacs in an attempt to find answers to some of the

following questions about cardiac rehabilitation:

a. Work tolerance of various cardiac types.
b. The cardiac's needs in "reëducation for living."
c. Type of medical supervision essential during sheltered employment and after reëmployment.
d. Non-medical services needed during the "hardening" and rehabilitation period such as vocational guidance, family social service, and psychological adjustment.

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

At the October, 1947, meeting of the Conference of Municipal Public Health Engineers in Atlantic City, the following officers were elected for a period of one year:

Chairman—Charles L. Senn, Director, Sanitation Bureau, Los Angeles City Health Department
Vice Chairman—Morton S. Hilbert, Director, Bureau of Engineering and Sanitation, Wayne County (Mich.) Health Department
Secretary-Treasurer—A. H. Herberger, Director, Division of Sanitation, Nassau County (N. Y.) Health Department

All three are Fellows of the Engineering Section of the A.P.H.A.

RESEARCH ON ORTHOPEDIC APPLIANCES

The Mellon Institute of Pittsburgh announces a comprehensive multiple research fellowship to conduct broad scientific investigation and development about orthopedic appliances. Problems of mechanical design, improvements in construction materials, and methods of fitting appliances will receive particular study.

The program is headed by Senior Fellow John R. Young, a research specialist in metallurgy and mechanical engineering. Eugene F. Murphy, Engineer of the Committee on Artificial Limbs of the National Research Council, serves as Advisory Fellow. A medical advisory committee of three orthopedists also serves the fellowship.

The work is made possible through a grant by the Sarah Mellon Scaife Foundation of Pittsburgh.

NAVAL AIR RESERVE TRAINING

The Naval Air Reserve Training Command makes the following announcement:

The Naval Air Reserve Training Command, with headquarters at Naval Air Station, Glenview, Ill., has 17 nationally located Naval Air Stations and 4 Naval Air Reserve Training Units at which Naval Reserve Medical Officers may serve on active duty with full pay and allowances and with the privilege of returning to civilian life at any time upon request. Additional details may be obtained from Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Ill.

FIRST TOWNS IN CONNECTICUT TO VOTE FOR DISTRICT HEALTH DEPARTMENTS

The August *Journal* (p. 1079) reported the action of the Connecticut State Legislature in appropriating funds for state aid to consolidated health districts. The October *Bulletin of the Connecticut State Health Department* reports that three towns, Andover, Roxbury, and Vernon, the first with a population of about 9,000, the others with fewer than 1,000, have voted to join district departments of health when neighboring towns take similar action. Four groups of towns comprising 44 of the state's 161 towns have met to discuss the health district plan, but no group has yet officially applied to the State Department of Health to establish a district department of health.

MINNESOTA PUBLIC HEALTH CONFERENCE

The Minnesota Public Health Conference created in January, 1947, held its first annual meeting November 14, 1947, in the Radisson Hotel in Minneapolis. An evening session was devoted to a banquet commemorating the 75th anniversary of the Minnesota State Board of Health and to paying respects

to A. J. Chesley, M.D., who has served the Board for 46 years, for 26 years as Secretary and Executive Officer. The toastmaster was Thomas B. Magath, M.D., President of the State Board of Health.

The newly elected officers for 1948 are:

President—J. Lawrence McLeod, M.D., Grand Rapids
First Vice-Chairman—Melvina Palmer, Minneapolis
Second Vice-Chairman—S. P. Kingston, Rochester
Treasurer—Charles G. Sheppard, M.D., Hutchinson
Secretary—D. A. Dukelow, M.D., Minneapolis

DR. MELENEY HEADS PROFESSORS OF PREVENTIVE MEDICINE

At the recent annual meeting of the Conference of Professors of Preventive Medicine, Henry E. Meleney, M.D., Hermann Biggs Professor of Preventive Medicine at the New York University College of Medicine, was elected President for the 1947–1948 year. A mimeographed directory of persons engaged in teaching preventive medicine and public health in the 88 medical schools in the United States and Canada was issued at the meeting. Copies may be obtained by writing to Dr. Thomas D. Dublin, Secretary, 248 Baltic Street, Brooklyn 2, N. Y.

FIVE YEAR PLAN FOR VISUAL EDUCATION

A community program for developing visual education aids has been developed in New Orleans. The Louisiana State and New Orleans City Departments of Health and the Newcomb Art School of Tulane University have agreed on a five year program of visual aid training and production to cost about $200,000.

Under the plan the Art School will train undergraduate and graduate students in the production of visual aid materials, produce materials such as still photography; film strips; animated statistical graphic and pictorial matter; exhibition layouts; pamphlets and posters; provide consultation service; and train selected members of the two agencies in the visual aid program.

The State and City Health Departments will provide a portion of the funds by pooling the money ordinarily used for health educational materials, will provide a visual aid consultant, and develop a joint advisory committee on public health in planning the audio-visual art program.

DUST OR BACTERIA COUNTS

The Office of Technical Services, U. S. Department of Commerce, announces sale of a recently published report which describes a photoelectronic counter for use in counting colloidal particles in air to record the presence of dust or bacteria. According to the announcement the counter was designed as a smoke penetrometer for comparisons of concentrations of very dilute aerosols and was used to give rapid quantitative tests of penetrations of gas mask filters. Adaptation of the counter for other uses in colloidal chemistry, biology, and industry are suggested.

The counter is actuated by electric impulses produced by the action on a photoelectric cell of beams of light reflected from particles in a stream of the air being examined as it passes through the counter. The report, "A Photoelectronic Counter for Colloidal Particles," can be obtained through the Office of Technical Services, Department of Commerce, Washington 25, D. C. Microfilm copies, $1.00; photostatic copies, $2.00.

WORKSHOP ON MENTAL HEALTH ASPECTS OF NURSING

A workshop on the Mental Health Aspects of Nursing is offered by the Catholic University of America June 11–22, 1948. There will be special emphasis on ways and means of incorporating mental health principles in all areas of nursing.

For further information write to: Miss Theresa G. Muller, Coördinator in Psychiatric Nursing, School of Nursing Education, Catholic University of America, Washington 17, D. C.

NEW INFORMATION CENTER ON ALCOHOLISM

The Detroit Committee for Education on Alcoholism, one of 28 such local committees in 14 of the 48 states and the District of Columbia, has opened an information center. The center provides consultation and advice and provides guidance in securing professional treatment when needed, in addition to promoting a continuous educational campaign. One of 15 information centers operated by local committees, this has the collaboration of the National Committee for Education in Alcoholism and of the Yale School of Study of Alcoholism.

BUFFALO CITY-ERIE COUNTY HEALTH DEPARTMENT

New York's largest upstate city with more than half a million population has joined with Erie County in forming a city-county health department. This consolidation went into effect on January 1, 1948, with Berwyn Mattison, M.D., as Health Officer. Dr. Mattison has recently been Health Officer of the City of Yonkers and before that District Health Officer in the Kingston State Health District.

This new health department covers all of Erie County except the cities of Lackawanna and Tonawanda with 1940 populations respectively of 24,000 and 13,000. The respective municipal officials failed to act favorably on the plan to consolidate the services of the entire county. Each city has a part-time health officer.

HERBERT HOOVER SELECTS AIDES FOR FEDERAL STUDIES

It was announced in Washington on December 18 that former President Herbert Hoover, who heads the U. S. Commission on the Organization of the Executive Branch of the Government, had selected several of those who would make studies in connection with the Commission's work.

The Brookings Institution of Washington has been selected to report upon the health, education and social security functions of the federal government, as well as on the government's transportation activities.

Among the other selections was that of Thomas Jefferson Coolidge of Boston, former Under Secretary of the Treasury, to head a committee to study overlapping administration, taxation, and grants-in-aid between the federal and state governments.

PROPOSED END OF U. S. TAX ON MARGARINE

On December 18, Senator J. William Fulbright of Arkansas introduced into the Senate a bill repealing all federal taxes on oleomargarine on the basis that they are "directly opposed to the spirit of free enterprise."

This proposal is in line with the spirit of a resolution adopted unanimously by the Governing Council at the 75th Annual Meeting of the American Public Health Association (*A.J.P.H.*, Dec., 1947, p. 1623).

According to Senator Fulbright, the taxes and licenses on margarine is the only case where a federal tax is levied on one domestic product for the benefit of a competing product.

MISS FILLMORE SUCCEEDS MISS HOULTON IN N.O.P.H.N.

On January 19, 1948, Ruth Houlton, R.N., retired as General Director of the National Organization for Public Health Nursing, a position she has held since 1942 when she became Director after serving 7 years as Assistant and then Associate Director.

Miss Houlton was succeeded by Anna Fillmore, R.N., who has been with the Visiting Nurse Service of New York since 1940 successively as staff nurse, supervisor, industrial nursing consultant, and assistant director. Previous to 1940 she was Director of the Bureau of Public Health Nursing in the Utah State Health Department and Assistant Director of the American Nurses Association. She holds a B.S. degree from Teachers College, Columbia University, and the degree of Master of Public Health from Harvard University.

Miss Fillmore has held special lectureships at Teachers College, Columbia University, Toronto University, and the School of Public Health, Harvard University, and is the author of several articles on public health nursing and industrial nursing which have appeared in professional magazines.

RESEARCH ON HUMAN REPRODUCTION

Haven Emerson, M.D., Chairman of the National Committee on Maternal Health, which was organized in 1923 by a group of physicians, recently announced the first comprehensive program for research in reproduction to be undertaken. This program will be under the direction of the National Research Council which has established a Committee on Human Reproduction to study needs and, on the basis of findings, to recommend grants for specific research projects. The Planned Parenthood Federation will collaborate in and seek to contribute substantial funds for the research program while its clinics and records can serve as a valuable field for some of the research projects.

The Chairman of the Council's new Committee on Human Reproduction is Howard C. Taylor, Jr., M.D., Professor of Obstetrics and Gynecology at Columbia University's College of Physicians and Surgeons. His committee is made up of 14 experts in several fields; obstetrics and gynecology, urology, anatomy, zoölogy, embryology, general medicine, population problems, psychology, psychiatry, and physiological chemistry.

Coincident with this announcement a reorganization of the Board of the National Committee on Maternal Health was completed. Formerly made up of physicians, it is now predominantly a lay board made up of the following persons in addition to Dr. Emerson:

William Harding Jackson, Chairman of the Board of the New York Hospital and Cornell Medical Center, and of the Hospital Council of Greater New York

Frank Notestein, Head of the Office of Population Research at Princeton University

Frederick Osborn, United States representative on the United Nations Atomic Energy Commission

John D. Rockefeller, 3rd.

Dr. Kenneth Rose, Secretary of the Planned Parenthood Federation

Dr. Irvin Stewart, President of the University of West Virginia

Spencer Byard of New York, Legal Council

Sidney D. Gamble of New York, Treasurer

This Board will determine broad comprehensive policies and will appeal to the public for financing the research program.

In commenting on the new program, Dr. Emerson said, "We are confident that the public will support this program enthusiastically once they understand it. Nothing is more obviously important to all Americans than the good health which begins with a sound foundation—healthy mothers and babies."

DR. FLORENCE R. SABIN ASSUMES DENVER POST

Florence R. Sabin, M.D., President of the Western Branch of the American Public Health Association, well known because of her leadership of a public health movement in Colorado and elsewhere, assumed her duties as Director of Health and Charities in Denver on January 1. Dr. Lloyd Florio, Denver, will continue as City Health Officer in the plan for reorganizing the Department.

An effort in Denver to revise the city

charter and to abolish the position of Health and Charities Director was defeated with the November election. Dr. Sabin's appointment is understood to be for the interim until it is hoped the charter can be amended. Dr. Sabin has recently served as Chairman of the Board of Health of Denver and is a member emeritus of the Rockefeller Institute for Medical Research, New York, N. Y.

DR. PARRAN PROPOSES FEDERAL PLAN TO FINANCE TRAINING OF MEDICAL STUDENTS

At the conference in Washington, D. C., between the Surgeon General of the U. S. Public Health Service and the Association of State and Territorial Health Officers early in December, Dr. Thomas Parran, Surgeon General, proposed that the United States Government should subsidize medical students as one means of increasing the supply of physicians. The plan was supported at the same meeting in an address by Oscar R. Ewing, Federal Security Administrator.

Also supporting Dr. Parran, the Association of State and Territorial Health Officers approved such a plan and included scholarships in dentistry, nursing, and allied fields. Under this plan those applicants would be admitted to undergraduate medical schools of their choice under a plan similar to that now prevailing for men to attend military and naval schools. The applicants would obligate themselves to spend a month in federal service for each month of scholarship benefit, or at the discretion of the government, in state or local public health service.

Other steps recommended by the Association included federal aid to the states to expand and extend local public health services, federal grants to medical schools, transferral of the activities of the Children's Bureau to the Public Health Service, a more liberal plan for the loan of U. S. Public Health Service personnel to the states, and the set-up of an inter-agency committee on tuberculosis evaluation methods, including representatives of the A.P.H.A., National Tuberculosis Association, American Medical Association, U. S. Public Health Service, and the Association of State and Territorial Health Offices.

It was also proposed to improve U. S. Public Health Service laboratory services, including the establishment of a national Salmonella typing center, the supply of rare biologicals to public health and other laboratories, and the creation of a national virus and rickettsial identification center. They recommended continuation of the federal appropriations for a national school lunch program and supported steps in the direction of the topical application of sodium fluoride to children's teeth.

CANCER CONTROL GRANTS

The National Cancer Institute made grants of 1½ million dollars to 64 colleges, laboratories, and public health institutions as a result of the recommendations made at the two day meeting of the National Advisory Cancer Council in December. Half a million dollars was made available for research in 32 institutions, more than half a million for the improvement of teaching in medical schools, more than $100,000 for other projects largely in state health departments, and a quarter of a million for reconstruction of the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Me., destroyed in the November forest fires. This represents the first substantial construction grants ever made by the Council.

These December grants included other notable firsts. Grants of $13,000 and $10,000 respectively to scientists in the Pasteur Institute in Paris and the Hebrew University represent the first grants to scientists working outside the country. "They constitute," said Leon-

ard Scheele, M.D., Director of the National Cancer Institute, "a move to assist in the mobilization of an international attack on cancer." This same meeting produced also the largest grant made to a single institution—$112,500 to Memorial Hospital in New York for 5 research projects and $30,000 for cancer pathology and medical training.

BORDER PUBLIC HEALTH ASSOCIATION TO MEET MARCH 20–22

M. F. Haralson, M.D., El Paso, Tex., Secretary of the United States-Mexico Border Public Health Association, has announced that the annual meeting which originally had been announced for late March will be held March 20–22, in Laredo, Tex., and in Neuvo Laredo, Mexico.

The Border Public Health Association is closely linked with the program of the Pan American Sanitary Bureau, Washington. Dr. Haralson, who represents the Bureau in El Paso, would welcome word from public health workers who could be in that vicinity at the time of the meeting.

MANUAL OF RECOMMENDED WATER-SANITATION PRACTICE

This *Manual* presents in concise form the salient features essential to the sanitary control of a water supply system and its operation. It "primarily is to serve as a guide to Public Health Service engineers in evaluating the sanitary features of water supplies with which they are concerned." It should prove equally valuable to state departments of health and others concerned with water sanitation.

Prepared coöperatively by the Water and Sanitation Investigations Station, Cincinnati, and the Sanitary Engineering Division, U. S. Public Health Service, the text is divided into four sections. They cover: Part I, those features of water supply systems which should be included in any survey and which are important enough so that defects would be detrimental to the safety of the supply. Parts II and III deal with recommended sanitary requirements for water treatment and distribution. Part IV is an explanatory discussion of the bacteriological and chemical requirements for potable drinking water as set forth in the 1946 *Public Health Service Drinking Water Standards*.

May be obtained from the Superintendent of Documents, Washington, D. C., 15 cents.

BALTIMORE MEDICAL SOCIETY REQUESTS MEDICAL CARE PROGRAM EXTENDED

In October, 1947, the Baltimore Medical Society unanimously voted a resolution requesting the Baltimore City Health Department to organize a medical care program such as is now in effect in the 23 counties of Maryland. This program was begun in the state in 1945 in accordance with state legislation authorizing a medical care program through the state and local health departments. After two years of its operation in the counties, the Baltimore Medical Society recommends its extension and promises the Baltimore Health Commissioner "that its officers will be glad to coöperate in every way possible in carrying out this important program."

VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of $300 for the best essays submitted concerning original work on problems related to the thyroid gland. Essays may cover either clinical or research investigations, should not exceed 3,000 words, and must be in English, typewritten in double spaced copy. The award will be made at the annual meeting of the Association in Toronto, May 6–8. Address Dr. Thomas C. Davison, Corresponding Secretary, 207 Doctors Building, Atlanta 3, Ga.

PERSONALS

Central States

OTTO A. BESSEY, Ph.D.,* will become Professor and Head of the Department of Biological Chemistry, University of Illinois, College of Medicine, Chicago, as of April 1. He is now Chief, Division of Nutrition and Physiology, Public Health Research Institute, New York City.

HAYSE H. BLACK,† has become Associate Professor of Sanitary Engineering in the Department of Civil Engineering, University of Iowa. He has been the Officer in Charge of the U. S. Section, International Joint Commission Boundary Water Pollution Investigation, Detroit.

JACQUES P. GRAY, M.D.,* has joined the staff of Parke, Davis and Company in Detroit as Medical Consultant to the Sales and Promotion Division. Dr. Gray has a varied public health background in both the California and San Francisco Health Departments and with the Community Health Project of the W. K. Kellogg Foundation, among others.

NEW HEALTH OFFICERS IN ILLINOIS

CHARLES R. KINCAID, M.D.,† has been appointed Health Officer for the Will County Health Department, with offices in Joliet. He was for 3 years each with the Indiana State Board of Health, the City-County Health Department, at Eau Claire, Wis., as Director, and with the U. S. Army.

ERNEST J. BECKNER, M.D.,† was recently appointed Health Officer for the Montgomery County Health Department effective October 1. Since 1941 he has served with the Health Department in Pratt County and later with the Butler County Health Department in Kansas.

RACHEL M. LEHMAN, Instructor in Medical Technology, University of Indiana Medical School, has been elected President of the American Society of Medical Technologists.

FRED LONG, M.D.,* of the Nebraska State Department of Health has been appointed Director of the City-County Health Department, Lincoln. He succeeds CORINNE EDDY, M.D.,† recently resigned. Dr. Long has been directing the preventable disease control work of the State Department of Health and has been acting director of the Division of Venereal Disease Control.

ALLAN STONE,† has been named Executive Director of the Minnesota Cancer Society, a division of the American Cancer Society. For the past six years he has been Research Director of the Amherst H. Wilder Charity of St. Paul, and earlier Assistant Head of the Bureau of Research and Statistics, Minnesota Division of Social Welfare.

EDGAR WILLIAM WARREN, M.D., was recently appointed as Director of the newly established Mental Hygiene Division, Kansas State Board of Health. Dr. Warren has served on the staff of the Louisiana State Health Department, and since January, 1946, with the Menninger Foundation.

Eastern States

P. G. AGNEW, PH.D., who for the past 28 years has served as Secretary and head of the staff of the American Standards Association, New York, N. Y., retired January 1, but the Board of Directors has retained his services as Consultant.

THEODORE E. BOYD, M.D., has been named associate director of research for the National Foundation for Infantile Paralysis, New York, N. Y. He has been on the faculty of the Loyola University School of Medicine.

PHILIP S. BROUGHTON,* recently joined

the staff of A. W. Mellon Educational and Charitable Trust of Pittsburgh in an administrative capacity. He was formerly public relations counsel of Young and Rubicam, a national advertising agency with headquarters in New York.

CHARLES M. CARPENTER, M.D.,† on January 1, accepted appointment as Professor and Chairman of the Department of Infectious Diseases at the new medical school of the University of California at Los Angeles. Dr. Carpenter was previously Associate Professor of Bacteriology and Public Health at the University of Rochester (N. Y.) School of Medicine and Dentistry.

HOWARD ENNES, Chief, Extension and Training Section, and MARGARET K. LUMPKIN,† Venereal Disease Division, U. S. Public Health Service, have been detailed to New Haven, Conn., respectively as Executive Secretary and Associate in Medical Social Work, with the Cooperative Studies in the Social and Educational Aspects of Venereal Disease Control, a joint undertaking of the Department of Public Health of Yale University and the Venereal Disease Division of U. S. Public Health Service.

ROBERT U. GATES was recently appointed as a representative of the Engineers Joint Council on the U. S. Commission for United Nations Educational, Scientific and Cultural Organization. Mr. Gates is President of the American Society of Mechanical Engineers and a specialist in the design and construction of fuel burning and steam generating installations.

HARRY HEIMANN, M.D.,† has been appointed Industrial Hygiene Consultant to District 1 of the U. S. Public Health Service, New York, N. Y. With the rank of Senior Surgeon he has been in the Washington office of the Service since 1946. Previously he was in the Syracuse, N. Y., office and in the Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor.

JOSEPH HIRSH,* Associate Director, The Research Council on Problems of Alcohol, New York, has become Director of Public Information, World Health Organization, Interim Commission, of the United Nations. He participated in the Fifth Session of the World Health Organization, Interim Commission in Geneva, Switzerland, January, 1948.

VICE ADMIRAL GEORGE F. HUSSEY, JR., USN (Ret), wartime Chief of the Navy's Bureau of Ordnance, on January 1 assumed his duties as administrative head of the American Standards Association. He will direct the coöperative efforts of industry, consumers, and the government in the vital problem of standardization.

EVA LANDSBERG, M.D.,† has been appointed Chief of the Division for Physically Handicapped Children in the New York City Department of Health, succeeding SAMUEL M. WISHIK, M.D., resigned.

HAROLD H. MITCHELL, M.D.,† recently was appointed Director of School Health for the public schools of Montgomery County, Maryland, with headquarters in Rockville. Dr. Mitchell was previously a district health officer of the New York City Department of Health.

ROBERT W. OSBORN * was recently elected by the board of managers of the State Charities Aid Association of New York as executive secretary of its State Committee on Tuberculosis and Public Health and assistant secretary of the Association. Mr. Osborn is the third executive secretary of the state committee since it was organized in 1907 to fight tuberculosis. He

* Member A.P.H.A.
† Fellow, A.P.H.A.

joined the S.C.A.A. staff as administrative assistant in 1924.

LUCILE PETRY, Chief of the Nursing Division of the U. S. Public Health Service, and AGNES CHAGAS, Nursing Director of the Pan American Sanitary Bureau, are in Mexico City studying the feasibility of establishing a school of nursing at the University of Mexico.

SOL PINCUS, C.E.,* retired as Senior Sanitary Engineer with the New York City Health Department on October 1. Mr. Pincus served with the City Health Department from July, 1935, until his retirement, and at one time held the title of Deputy Commissioner, being in charge of Food and Drug Control and Sanitary Activities for the department. He is now in private practice as a public health engineering consultant.

ARTHUR B. ROBINS, M.D., DR.P.H.,* was designated as Acting Director of the Bureau of Tuberculosis, Department of Health, New York City, effective September 1, 1947. He has been associated with the department as Supervisor of Clinics in the Bureau of Tuberculosis since 1937.

DEAN THORNDIKE SAVILLE, of the College of Engineering, New York University, has been appointed a member of the New York State Public Health Council by Governor Dewey, filling the vacancy created by the recent death of PROFESSOR HENRY E. OGDEN of Cornell.

Southern States

ROBERT L. CHERRY, M.D.,† in October became Deputy Medical Director of the Eastern Area, American Red Cross, with headquarters in Alexandria, Va. During the war Dr. Cherry served with the Allied Military Government in North Africa and Italy as communicable disease officer for the Public Health Subcommission of the Allied Commission. He was awarded the United States Army Typhus Commission medal by the American Government and the Knight Order Crown of Italy by the Italian Government for his services during the Naples typhus epidemic.

Western States

ADDITIONS TO STAFF OF DENVER, COLORADO, HEALTH DEPARTMENT

WARD L. CHADWICK, M.D.,† as Director of Communicable Disease Control. A pediatrician who was a medical officer in charge of venereal disease control in the Army during the War, he was previously pediatric consultant to the Colorado State Division of Public Health.

EVELYN RAHM,* Health Education Consultant with the U. S. Public Health Service, District 8, has been on loan from the U. S. Public Health Service, since September 15.

HAROLD J. BARNUM, as Chief of the Milk Section of the Environmental Sanitation Division. He has been in the public health phase of milk work for 14 years, having served on the National Committee of the International Milk Association continuously since 1933. He is author of several special bulletins issued by the Michigan Agriculture Experimental College, and has been employed in the Milk Division of the City of Detroit, and was in charge of the sanitation program for Ann Arbor.

J. ROBERT CAMERON,† as Chief of the Denver Sanitation Section of the Environmental Sanitation Division, will be in charge of rodent and insect control, and will supervise swimming pools, private water supplies, and act in an advisory capacity for sewage disposal and garbage collection. He was former engineer for the Washtenaw County, Michigan Health Department.

JAMES A. KING,† recently of the U. S.

Public Health Service as Chief of the Education and Training Section of the Environmental Sanitation Division.

RUTH RAATTAMA, M.D.,* as Director of the Maternal and Child Health Division. Recently with the Idaho State Health Department, she has just completed a 3 months' Fellowship at the Mayo Clinic.

HELEN GRIFFIN TIBBITTS, was appointed State Vital Statistics Registrar of Oregon. She has been with the U. S. Public Health Service, and more recently engaged in special studies in the department of sociology, University of Michigan.

Other Areas

MIGUEL BUSTAMENTE, M.D.,† has been appointed Secretary of the Pan American Sanitary Bureau. He was formerly chief of the Epidemiology Laboratory of the Mexico Department of Health.

JESSE C. ELLINGTON, M.D., M.P.H.,* recently received from the Republic of Panama, the Order of Vasco Nunez de Balboa, grade of "Commendador." This is the highest decoration for distinguished public health service given by Panama.

JOHN E. ELMENDORF, M.D.,* Rockefeller Foundation, Bogota, Colombia, was recently decorated as Honorary Officer of the Military Division of the Most Excellent Order of the British Empire, in Bogota. Dr. Elmendorf's decoration was conferred on him in recognition of his work as Director of the U. S. Army School of Malariology in Panama.

HERNAN ROMERO, M.D., M.P.H.,* Director of the School of Public Health, Santiago, Chile, has recently been appointed permanent head of the Department of Hygiene and Preventive Medicine in the Medical Faculty, where he will be responsible for the undergraduate program.

Death

WELLINGTON PORTER SHAHAN,† Executive Secretary of the Illinois Tuberculosis Association for 18 years, died on November 21, 1947.

CONFERENCES AND DATES

American Association of Medical Social Workers. Atlantic City, N. J. April 19.

American Association of Psychiatric Social Workers—Annual Meeting. Atlantic City, N. J. Week of April 18.

American Association of Social Workers. Atlantic City, N. J. April 16-18.

American College of Physicians—Annual Session. San Francisco, Calif. April 19–23.

American Hearing Society—National Conference and Annual Meeting. Pittsburgh, Pa. May 19–23.

American Industrial Hygiene Association—Annual Meeting. March 30–April 1. Boston, Mass.

American Public Health Association. 76th Annual Meeting. Boston, Mass. Week of November 8, 1948.

Canadian Public Health Association. Vancouver, May 18–20.

Community Chests and Councils—Annual Meeting. Atlantic City, N. J. April 14–17.

Fourth International Congresses on Tropical Medicine and Malaria. Washington, D. C., May 10–18.

International Conference of Social Work. Atlantic City, N. J. April 17–25.

International Council for Exceptional Children—24th Annual Convention. Des Moines, Iowa. April 25–28.

International Poliomyelitis Conference (First)—Sponsored by the National Foundation for Infantile Paralysis. New York, N. Y. July 12–17.

National Conference of Social Work. Atlantic City, N. J. Week of April 18.

National Conference on Family Life. Washington, D. C. May 6–8.

National Organization for Public Health Nursing—Biennial Nursing Convention. Chicago, Ill. May 31–June 4.

National Society for the Prevention of Blindness. Minneapolis, Minn. April 5–7.

New England Health Institute. Amherst, Mass. June 16–18.

* Member A.P.H.A.
† Fellow, A.P.H.A.

Puerto Rico Public Health Association. San Juan, P. R. February 11–14.
Southern Branch. American Public Health Association. New Orleans, La. April 12–14.
United States–Mexico Border Public Health Association—Annual Border Health Conference. Laredo, Texas, and Nuevo Laredo, Mexico. March 20–22.
Western Branch. American Public Association. Salt Lake City, Utah. May 25–27.

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Part II. Appraisal of Dwelling Conditions. Director's Manual; Field Procedures; Office Procedure (1946). $5.00.
Basic Principles of Healthful Housing. 2nd ed. rev. 1946. Report of the Committee on the Hygiene of Housing. 34 pp. $.40.
Control of Communicable Diseases, The. 6th ed., 1945. Size 4¼" x 7¼". 149 pp. $.35.
Diagnostic Procedures and Reagents. Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. 2nd ed., 1945. $4.00.
Health Practice Indices. A collection of charts showing the range of accomplishment in various fields of community health service. 1945. 87 pp. Free.
Membership Directory. 1946. (Free to A.P.H.A. members). $5.00.
Methods for Determining Lead in Air and in Biological Materials. 1944. 41 pp. $.75.
Occupational Lead Exposure and Lead Poisoning. 1943. 67 pp. $.75.
Panum on Measles. By P. L. Panum (translation from the Danish). Delta Omega ed., 1940. 111 pp. $2.50.
Public Health in Midstream. Papers presented at the Special Sessions at Atlantic City. Supplement to A.J.P.H., Jan. 1948. $1.00.
Proceedings of the National Conference on Local Health Units. Supplement to A.J.P.H., Jan. 1947. 160 pp. Covered, $1.00.
Shellfish and Shellfish Waters, Recommended Methods of Procedure for Bacteriological Examination of. 1947. 12 pp. $.25.
Spanish Summary of 8th edition (1941) of Standard Methods for the Examination of Dairy Products. 1945. 52 pp. Free to Latin American countries. $.10 in the United States.
Standard Methods for the Examination of Water and Sewage. 9th ed., 1946. 286 pp. $4.00.
Physical and chemical examination of water and sewage, microscopical examination of water and bacteriological examination of water.
Survey Form for Milk Laboratories. Indicating Conformity with Standard Methods for the Examination of Dairy Products (8th ed.). May, 1944. Single copies 10¢; 50 copies $1.00; 100 copies $1.50; 1,000 copies $10.00.
Swimming Pools and Other Public Bathing Places, Recommended Practice for Design, Equipment and Operation of. 1942. 56 pp. $.50.
Vital Statistics Directory. Compiled by the Vital Statistics Section. 3d ed., 1945. $.75.

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